ID: 1

Naloxone laws facilitate the establishment of overdose education and naloxone distribution programs in the US

Barrot Lambdin, RTI International

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Policy

Abstract: Aim: The opioid overdose crisis continues to worsen in the United States. However, opioid overdose mortality is preventable with timely administration of naloxone. Since 2001, many states have passed laws to create an enabling environment for the implementation of overdose education and naloxone distribution (OEND) programs. We assessed whether the establishment of state-level naloxone laws and their provisions stimulated the implementation of OEND programs in the United States. Methods: Random effects logistic regression models with robust variances were used to examine the association of naloxone access laws and their provisions with the implementation of OEND programs as of the end of 2014, adjusting for overdose mortality rates. Results: At the end of 2014, 51% of counties were in states with a naloxone law, and 8% of counties had OEND programs implemented within them. Counties within states that had a naloxone law (aOR=103.4;p < 0 .001) or a law with any one of the six provisions – third party (aOR=22.4;p < 0 .001), standing order (aOR=18.2;p < 0 .001), possession (aOR=66.1; p < 0 .001), prescriber immunity (aOR=6.4;p=0.001), dispenser immunity (aOR=4.3;p=0.006) or lay dispensing (aOR= 10.3;p=0.001) – had increased odds of having an OEND program implemented within them, compared to counties within states without a law or specific provision, respectively. Similarly, counties within states that had a naloxone law (aOR=1.7;p < 0 .001) or a law with any one of the six provisions - third party (aOR=2.2;p < 0 .001), standing order (aOR=2.6;p=0.009), possession (aOR=3.4;p=0.023), prescriber immunity (aOR=1.4;p < 0 .001), dispenser immunity (aOR=1.4;p < 0 .001) or lay dispensing (aOR=5.7;p=0.008) – in place for longer periods of time had increased odds of having an OEND program implemented within them. Conclusion: Our findings suggest that naloxone laws and their provisions created an enabling legal environment which facilitated the OEND implementation. With only 8% of counties having an OEND program within them, future studies should investigate strategies to improve the implementation of OEND programs, especially where overdose mortality rates are high.

Financial Support: This work was conducted with funding from the National Institute on Drug Abuse (R34DA039101).

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Degrees: MA MD Ph.D etc:: PhD, MPH

Company Affiliation: RTI International

ID:
1a

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Denise De Micheli, Federal University of São Paulo **(Primary Presenter)**
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Title:
The main barriers and facilitators to implement Adolescent Screening and Brief Intervention in primary care unit: a follow up from 17 years.

Abstract Category:
Original Research

Abstract Detail:
Human

Drug Category:
Polydrug

Topic:
Prevention

Aims:

After 17 years from the first study, it was evaluated the concepts and beliefs regarding alcohol and other drug (AOD) use, as well as the main barriers and facilitators to implementation of Screening, Brief Intervention and Referral to Treatment (SBIRT) in the routine of pediatricians from a Brazilian primary care unit.

Methods:

The same questionnaire applied at the first study conducted 17 years ago, was applied in this study to 27 pediatricians from a primary health service for adolescents. From these, 15 pediatricians attended to the first study. It was evaluated attitudes and knowledge from the participants, self-efficacy, comfort related to alcohol/drug use and comorbidities screening, as well as barriers and facilitators to conduct SBIRT.

Results:

Most of the pediatricians felt unprepared to screen alcohol abuse (48%) and other drug abuse (63%) than other comorbidities (17%) ($p < 0.001$), most of them feltl embarrassed to argue this issue with the teenagers (78%) since they face it as an invasion of privacy (90%) and believe that the teenagers would not be honest in their answers (89%). Most of them reported not feeling prepared to carry SBIRT and only 33% agreed that the physician

should perform this activity as part of a routine consultation. Overall, pediatricians were more likely to screen boys than girls, being that male pediatricians had more facility to screen boys than female pediatrician (35.5% vs. 11%, $p < 0.0001$). In general, their self-efficacy played an important role which can difficult the implementation of procedures for SBIRT. uffering less pressure by staff, having more time with the patients, and attend to periodic training on this thematic were mentioned as potential screening facilitators. One of the main follow-up results showed that, 46% participants of the first study continued to conduct SBIRT.

Conclusions:

Organizational factors related to pediatrician's routine as well training and support improving the their self efficacy are the potential SBIRT facilitators. Taken together, it is very important the ongoing investment in SBIRT research, policies, guidelines, recommendations and trainings to that this practice to spread and that future pediatricians be motivated to conduct SBIRT as part of routine medical practice.

Willing to present orally:
Yes

Publication in D.A.D:
Yes

Financial Support:
CAPES Universidade Federal de São Paulo

Name of Sponsor (If you are NOT) a CPDD Member:
Maria Lucia Oliveira de Souza Formigoni

ID: 2
Influence of phendimetrazine maintenance on the reinforcing, subjective and physiological effects of intranasal cocaine

William Stoops, University of Kentucky

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Stimulants

Topic: Drug Interactions

Abstract: AIM Cocaine use disorder remains a public health concern for which no pharmacotherapies have been approved. Phendimetrazine, a prodrug of the monoamine releaser phenmetrazine, attenuates cocaine self-administration in preclinical models, has minimal abuse potential and is safe when combined with cocaine. This ongoing study is extending these previous findings by determining the influence of phendimetrazine maintenance on cocaine self-administration, as well as the subjective and physiological effects of cocaine. We hypothesize that phendimetrazine will reduce cocaine self-administration and that phendimetrazine will be safe when combined with cocaine. METHODS To date, 23 participants with cocaine use disorder have completed this within-subject study. Participants were maintained on placebo and 210 mg phendimetrazine in counterbalanced order. After at least 7 days of maintenance on the target dose, participants completed experimental sessions in which the reinforcing, subjective and physiological effects of 0, 20, 40 and 80 mg of intranasal cocaine were determined. Repeated measures ANOVAs were used to analyze peak effect data. RESULTS Cocaine functioned as a reinforcer, producing significant (i.e., $p < 0.05$) dose related increases in self-administration. Cocaine increased prototypic subjective and physiological effects (e.g., ratings of "Rush" and blood pressure; p values < 0.05). Phendimetrazine reduced cocaine self-administration by approximately 20% for the 40 and 80 mg cocaine conditions and also attenuated subjective effects of cocaine. This effect only attained statistical significance for some subjective outcomes (e.g., ratings of "Talkative, Friendly"; p values < 0.05), likely due to the magnitude of effect and limited statistical power. Phendimetrazine did not alter the physiological effects of cocaine. CONCLUSION Phendimetrazine may reduce the reinforcing and subjective effects of cocaine. More participants are needed for this ongoing project (targeted N = 36) before drawing final conclusions about the potential utility of phendimetrazine for treating cocaine use disorder.

Financial Support: R01 DA 036553

First Name: William

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Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: University of Kentucky

ID: 3
HIV continuum of care disparities among Latinos with a history of injection drug use

Diana Sheehan, Florida International University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Epidemiology

Abstract: AIM: HIV care preserves the health of people with HIV and lowers their risk of transmitting the virus. Among HIV diagnoses attributable to injection drug use (IDU) in the United States, 19% were among Latinos. The study's objective was to identify disparities along the HIV care continuum among Latinos by IDU history. METHODS: We used Florida records from Hispanics/Latinos aged ≥13 who met the CDC HIV case definition. For individuals diagnosed 2014–2015 (n=2,187), linkage to care was defined as evidence of a viral load or CD4 laboratory test within three months of HIV diagnosis. For cases diagnosed 2000–2014 with a current address in Florida (n=14,279), engagement in care was defined as evidence of at least one viral load or CD4 laboratory test, a physician visit, or antiretroviral therapy prescription fill during 2015; retention in care as engagement in care two or more times at least three months apart during 2015; and viral load suppression as a viral load of < 2 00 copies/mL during 2015. Multi-level models were used to estimate adjusted odds ratios (aOR). RESULTS: The proportion of Latinos not linked to care (34% vs. 22%; p-value .0201), not engaged in care (32% vs. 28%; .0031), not retained in care (38% vs. 33%; .0010), and not virally suppressed (45% vs. 37%;
Financial Support: Research reported in this publication was supported by the National Institute on Minority Health & Health Disparities (NIMHD) under Award Number 5R01MD004002. The content is solely the responsibility of the authors and does not necessarily represent the official views of NIMHD, or the National Institutes of Health.

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Company Affiliation: Florida International University

ID: 4
Cardiovascular safety of dopamine D3 receptor antagonists and cocaine

Nathan Appel, National Institute of Drug Abuse, National Institutes of Health

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Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Stimulants

Topic: Drug Interactions

Abstract: Dopamine is implicated in the rewarding effects of abused substances. There is a substantial literature suggesting that antagonizing brain dopamine D3 receptors with selective antagonists may be a potential mechanism of action for a substance abuse medication. Thus, NIDA was interested in testing selective dopamine D3 receptor antagonists as potential cocaine abuse therapeutics. Cocaine has hypertensive effects in humans that can lead to stroke and sudden cardiac death, and dopamine D3 receptors in kidney are implicated in blood pressure regulation. Hence, we conducted cardiovascular safety interaction studies in conscious, unrestrained telemetered dogs and in rats with the selective dopamine D3 receptor antagonist GSK598809 at intent-to-treat human exposure. GSK598809 increased the pressor effects of cocaine in both species. This suggested that a patient taking GSK598809 might be at risk if he/she used cocaine. Next, we conducted studies in conscious, unrestrained telemetered dogs with a different, and structurally distinct, selective dopamine D3 receptor antagonist, SB-277,011A, to determine if this action to increase cocaine's pressor effects is a class-effect of dopamine D3 receptor antagonists or unique to GSK598809. Here we report that SB-277,011A, also intensifies cocaine's cardiostimulatory effects. Intravenous cocaine increased mean arterial blood pressure and heart rate in conscious, unrestrained telemetered dogs. However, when the dogs received oral SB-277,011A (administered at the approximate Tmax of plasma SB-277,011A) prior to the cocaine dose, cocaine increased mean arterial blood pressure and heart rate to a greater degree than when the dogs did not receive SB-277,011A first. The hypertensive effect was similar to that seen in dogs and rats treated with GSK598809 prior to cocaine and the effect was dose-dependent. These data suggest that dopamine D3 receptor antagonists, as a class, increase cardiostimulatory effects of cocaine and therefore may not be safe in patients at risk for relapse to cocaine use.

Financial Support: NIDA Contract N01DA-13-8911

First Name: Nathan

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Degrees: MA MD Ph.D etc:: Ph.D.

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ID: 5
Enrollment in medication-assisted treatment and its association with injection initiation assistance in Vancouver, Canada

Maria Luisa Mittal, University of California San Diego, Division of Infectious Diseases and Global Public Health

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: AIM: Medication-assisted treatment (MAT) is an effective biomedical intervention to manage opioid use disorder and reduce the risk of viral transmission among people who inject drugs (PWID). We previously reported on a protective association between a history of MAT enrollment and PWID reporting ever initiating others into drug injecting in San Diego, USA. We sought to investigate this association by investigating the association between recent MAT enrollment and recent injection initiation assistance provision among PWID in Vancouver, Canada. METHODS: Preventing Injecting by Modifying Existing Responses (PRIMER; NIDA DP2-DA040256-01) is a multi-cohort study seeking to identify structural interventions that reduce the risk that PWID initiate others into injection. The present baseline analysis was conducted using data from a participating cohort of PWID in Vancouver, Canada between Dec 2014 and Nov 2016. Multivariable logistic regression models were used to assess the association between reporting recent (i.e., within the past six months) injecting initiation assistance and recent MAT enrolment (coefficient of interest). A final multivariable model was determined using a manual stepwise approach whereby covariates were excluded if their removal altered the coefficient of interest by < 5 %. RESULTS: Participants (n=1959) were predominantly male (63.5%), 79 (4.3%) recently provided injection initiation assistance, and 856 (43.7%) reported recent MAT enrolment. Despite adjustment, participants who reported recent MAT enrolment had a significantly lower odds of providing recent injection initiation assistance (Adjusted Odds Ratio=0.51, 95% Confidence Interval: 0.30-0.87) in the final multivariable confounding model. CONCLUSION: These findings suggest that along with MAT's effectiveness at managing opioid use disorder, MAT may also have a secondary protective effect on the expansion of injection drug use among vulnerable populations.

Financial Support: NIDA awards DP2-DA040256-02 & T32DA023356

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Company Affiliation: University of California San Diego, Division of Infectious Diseases and Global Public Health

ID: 7
Topiramate-phentermine combinations as a pharmacotherapy for cocaine dependence

Craig Rush, University of Kentucky

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Stimulants

Topic: Treatment

Abstract: Aim: Cocaine-use disorder and obesity share common neurobiological underpinnings. The GABA/glutamate modulator topiramate and the monoamine releaser phentermine are effective anorectics that may attenuate the abuse-related effects of cocaine. A topiramate-phentermine combination (Qsymia®) is indicated for obesity, but the efficacy of topiramate-phentermine for cocaine-use disorder is unknown. Methods: In this mixed-model study, the influence of topiramate-phentermine combinations on the reinforcing effects of cocaine is being determined. Separate cohorts of non-treatment seeking, participants with cocaine-use disorder (n=20 completed) are randomized to different maintenance conditions of topiramate. Participants in each topiramate cohort are maintained concurrently on phentermine (0, 15, and 30 mg/day). After participants in each phentermine cohort are maintained for at least 4 days on each of the phentermine doses, the reinforcing effects of intranasal cocaine (0, 40, and 80 mg) are determined using a progressive-ratio choice procedure. Results: Cocaine increased responding on the progressive-ratio procedure during placebo-placebo maintenance. Topiramate alone (i.e., combined with 0 mg phentermine) or phentermine alone (i.e., combined with 0 mg topiramate) produced moderate reductions in responding for cocaine (i.e., 3.2-3.6 choices). Combining 15 mg/day phentermine with 100 mg/day topiramate reduced cocaine self-administration to the same extent as each constituent drug alone. Combining 30 mg/day phentermine with 100 mg/day topiramate produced a large (i.e., up to 7 choices out of 10) and statistically significant reduction in the number of cocaine choices. The topiramate-phentermine combinations were well tolerated alone and when combined with cocaine. Conclusion: The combination of 100 mg topiramate and 30 mg phentermine decreased cocaine self-administration by approximately 70%, which is one of the largest reductions observed in a human laboratory study. Efficacy of this topiramate-phentermine combination for cocaine-use disorder should be assessed in a clinical trial.

Financial Support: R01 DA036827

First Name: Craig

Last Name: Rush

Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: University of Kentucky

ID: 8
Orexin A in the posterior paraventricular nucleus of the thalamus promotes cocaine-seeking behavior: Differential hypothalamic activation during abstinence.

Alessandra Matzeu, The Scripps Research Institute

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Stimulants

Topic: Behavior

Abstract: Aim: Orexin (Orx) neurons that arise from the dorsal hypothalamus and project to the paraventricular nucleus of the thalamus (PVT) have received growing interest as a part of reward circuitry. We showed that at 2-week (intermediate) abstinence (I-Abst), Orx-A administration in the pPVT reinstated extinguished cocaine-seeking behavior in animals with short access (ShA, 2h/day) or long access (LgA, 6h/day) to cocaine as well as sweetened condensed milk (SCM, 30 min/day) seeking, with an increased reinstatement in the LgA group. This behavior was associated in LgA with strong Fos activation and a significant increase in Orx+/Fos+ expression in the dorsomedial hypothalamus (DMH), perifornical area (PFA), and lateral hypothalamus (LH). Considering the long-lasting nature of drug-seeking behavior, this study examined (1) whether the increase in Orx-A's priming effect endures after a longer period (4-week) of (protracted) abstinence (P-Abst) and (2) whether this is associated with hypothalamic activation. Methods: Male Wistar rats (n=44) self-administered cocaine (ShA, LgA) or SCM for 21 days. Then, the animals were subjected to P-Abst (14 days in the vivarium followed by extinction training for 14-21 days, 2 h/day). Once the animals' behavior was extinguished, they received an injection of Orx-A (0.5 μg) in the pPVT and then placed in the operant chambers under extinction conditions for 2 h. Immediately following the behavioral tests, the animals were euthanized, and their brains prepared for Fos and Orx immunolabeling in the LH/DMH/PFA. Results: In contrast to what was measured following I-Abst, Orx-A did not trigger cocaine-seeking behavior in the LgA group. Orx-A's priming effects was enhanced in the ShA and SCM groups associated with an increase of Fos+ and a significant increase of Orx+/Fos+ in the LH/DMH/PFA. Conclusion: These data suggest that the functionality of Orx receptors and connectivity of the PVT-LH/DMH/PFA circuit undergo significant neuroadaptation following P-Abst.

Financial Support: Supported by: NIH/NIDA DA033344; NIH/NIAAA AA024146; AA006420.

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Degrees: MA MD Ph.D etc:: Ph.D.

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ID: 9
Opposing action of dynorphin and orexin in the posterior paraventricular nucleus of the thalamus: Cellular and behavioral evidence.

Alessandra Matzeu, The Scripps Research Institute

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Stimulants

Topic: Behavior

Abstract: Aim: The orexin (Orx) system plays a critical role in drug addiction and reward-related behaviors. The dynorphin (Dyn) system promotes depressive-like behavior and plays a key role in the aversive effects of stress. Both Orx and Dyn are co-released and have opposing functions in reward and motivation in the ventral tegmental area. We showed earlier that microinjections of OrxA in the posterior paraventricular nucleus of the thalamus (pPVT) exerted priming-like effects and reinstated cocaine-seeking behavior, suggesting that Orx transmission in the pPVT participates in cocaine-seeking behavior. The present study tested the hypothesis that Orx and Dyn interact in the pPVT and are involved in controlling reward-seeking behavior. Methods: Using a cellular approach, brain slices from naive adult Wistar male rats (n=10) were prepared for whole-cell recordings to study excitatory transmission in pPVT neurons. The superfusion of OrxA increased spontaneous glutamatergic transmission by increasing glutamate release onto pPVT neurons, whereas DynA decreased glutamate release. The augmentation of OrxA-induced glutamate release was reversed by DynA. To support the electrophysiological data, the influence of the OrxA-DynA interaction in the pPVT on seeking behavior was studied in animals that self-administered cocaine or a high palatable food reinforcer. Separate groups of male Wistar rats (n=75) were trained to self-administer cocaine or sweetened condensed milk (SCM). After self-administration training, the rats underwent extinction training and then received intra-pPVT administration of OrxA±DynA under extinction conditions. Results: OrxA reinstated cocaine- and SCM-seeking behavior, with a greater effect in cocaine animals. DynA selectively blocked OrxA-induced cocaine seeking vs. SCM seeking, whereas DynA alone did not exert any relevant behavioral effect in either group. Conclusion: These data indicate that DynA in the pPVT counteracts OrxA-induced cocaine seeking, perhaps by reversing the OrxA-induced increase in glutamate release, thus identifying a potential novel therapeutic target to prevent cocaine relapse.

Financial Support: Supported by: NIH/NIDA DA033344 (RMF), NIH/NIAAA AA024146 (RMF), AA022249 (RMF), AA006420 (RMF), AA020608 (OG).

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Company Affiliation: The Scripps Research Institute

ID: 10
Access to substance abuse treatments: Whites and Hispanics

Darlene Santiago, University of Pittsburgh

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Ethnic Differences

Abstract: AIM: To assess the difference in access for treatment or counseling for the use of substances between Hispanics and Whites in the US. METHODS: The 2015 National Survey on Drug Use and Health (NSDUH) annual census was used for this analysis. Data was downloaded through the Substance Abuse and Mental Health Data Archive (SAMSHA) website. Chi-squared test was used to test the proportion difference between Hispanics and Whites. RESULTS: Hispanics and Whites reported at different frequencies receiving treatment in the past ($p = 0.005$), Whites receiving more frequently treatment than Hispanics. During 2015 Hispanics reported more frequently the need for treatment and for additional treatment than Whites ($p = 0.206$ and 0.261). Hispanics also reported more frequently making efforts to receive the needed treatment compared to Whites ($p = 0.289$). Both ethnic groups coincide in the three most frequent reasons for not receiving the treatment they needed. No health insurance was the most frequent reason why Hispanics did not receive the treatment they needed ($p = 0.037$), whereas whites reported not ready to stop ($p = 0.960$). Hispanics responded more frequently than Whites all three statements. Hispanics reported more frequently the statement "there were no openings" as the main reason for not receiving the additional treatment ($p = 0.017$). CONCLUSION: Hispanics still at 2015 show differences in substance abuse treatments compared to Whites in terms of access to treatment and need for treatment. This survey elucidated that Hispanics lack of medical insurance decreases their access to treatment. This points towards strengthening the access to medical insurance in order to make more accessible treatments for substance abuse for Hispanics.

Financial Support: This project was partially supported by The National Institute of Health Award Numbers: HCTRECD R25MD007607 and HiREC S21MD001830 from the National Institute on Minority Health and Health Disparities.

First Name: Darlene

Last Name: Santiago

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: University of Pittsburgh

ID: 11
Empirically-derived alcohol and drug use patterns of sexual minority groups presenting to an urban emergency department

Brooke Arterberry, University of Michigan

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Behavior

Abstract: Aim: Minority sexual orientation (i.e., Lesbian, Gay, Bisexual; LGB) is a risk indicator for mental health and substance use problems, particularly among individuals from under-resourced urban communities. However, findings are inconsistent across studies investigating LGB substance use and risk factors, possibly due to heterogeneity in LGB subgroups. In order to inform models of risk for substance use, we identified empirical patterns of substance use and associated risky behaviors in this population. Method: Participants were recruited and screened in an Emergency Department (ED) as part of a randomized controlled trial of an alcohol brief intervention (BI). Screening data were used from LGB participants (N=343; Mage = 36, SD=12; 71% = Female; 75% = White). We conducted a latent class analysis to identity subgroups of substance users using AUDIT-C items (12m; > 3 for each item) and ASSIST items (12m; yes/no for each). Multinomial regression was performed to test predictors of class membership including demographics, depression symptoms, driving under the influence, and ever having a sexually transmitted infection (STI). Results: A 3-class model fit best and included "Alcohol users," (AU) "Alcohol/Marijuana users," (AMU) and "Polysubstance users" (PU). The AU class comprised the largest proportion across age, gender, race/ethnicity, and sexual orientation. The AMU and PU classes were comprised of a majority of Bisexual Females. A multinomial logistic regression indicated fewer depression symptoms and less driving after alcohol/marijuana use was associated with AU class membership, while never having a STI predicted AMU class membership. Conclusion: Findings suggest risk indicators among LGB individuals are related to substance use patterns as opposed to distinctions in sexual minority status. Using a combined approach to intervention and prevention program development may reduce substance use and risk among LGB individuals. Providing more support for LGB individuals endorsing polysubstance use may be of critical importance for BIs delivered in the ED.

Financial Support: This study was supported by a grant to FCB from NIAAA (#AA018659). AKD and BJA were supported by an NIAAA T32 postdoctoral training grant (#AA007477), AKD was subsequently supported by a NIDA T32 (#DA07209), and EEB was supported by a NIDA career development award (#DA036008). The funding sources had no role in the design/execution of this study or the interpretation or communication of findings

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Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: University of Michigan

ID: 12
Sexual risk associated with having sex with men among men who use methamphetamine in a Mexico-US. border city

Oralia Loza, University of Texas at El Paso

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Other

Abstract: AIM: The aim of this study is to determine differences in sexual risk behaviors between men who have sex with men (MSM) and other men who use methamphetamine. METHODS: In 2014-2015, men over the age of 21 who use methamphetamine/crystal (METH) in the past three months and living in a Mexico-U.S. were recruited using convenience and snowball sampling. They were interviewed in Ciudad Juarez, Chihuahua Mexico on their experiences with METH and drug use, sex with other men, sexual risk behaviors including transactional sex, and health outcomes including self-reported HIV and Hepatitis C Virus (HCV) status. Men were categorized as MSM if they reported a male sex partner in the past 12 months. Behaviors were compared between MSM and other men. RESULTS: Among the men who participated (n=100), median (Q1, Q3) age of participants was 29 (24, 37), 18% had sex with men in the past 12 months, and 30% at least once in their life. The median age of first use of METH was 18 (17, 23) and 12% indicated their reason for initiation was related to sex. Among MSM (n=19), 58% had also sex with women. Compared to other men, MSM had statistically significantly higher rates for receiving METH or money in exchanged for sex ever (63% vs 10%) or in the past 12 months (53% vs 7%), being penetrated during anal sex with last partner (32% vs 1%), ever having a same-sex partner in their life (100% vs 15%), and had higher rates of HIV infection (11% vs 1%) (p-values < 0 .05). CONCLUSION: In this border city, compared with other men who use METH, MSM engage in sexual risk behaviors at higher rates than other men placing them at risk of acquiring HIV and sexually transmitted infections. Appropriate interventions targeting Hispanic MSM who use METH are warranted.

Financial Support: UTEP Vulnerability Issues in Drug Abuse (VIDA) Project was funded by the NIH National Institute on Drug Abuse (1R24DA029989). Mentoring support came from the Interdisciplinary Research Training Institute (IRTI) Program at USC (R25 DA026401), also funded by National Institute on Drug Abuse.

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Last Name: Loza

Degrees: MA MD Ph.D etc:: M.A., Ph.D.

Company Affiliation: University of Texas at El Paso

ID: 13
A study on factors of better treatment outcome for patients with new psychoactive-substances-related disorders in specialized clinics or wards for drug dependence in Japan

Yuko Tanibuchi, Chiba Hospital

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Club/Designer Drugs

Topic: Treatment

Abstract: Aim: The aim of this study is to reveal the factors relating to better treatment outcomes of patients with psychiatric disorders caused by new psychoactive substances (NPS) in psychiatric hospitals with specialized clinics or wards for drug dependence, and to examine therapeutic strategies for patients with psychiatric disorders caused by NPS (PNPS). Methods: All participants (n=864) were under medical treatment for PNPS at eight psychiatric hospital s with specialized clinics or wards for drug dependence in Japan between April 2012 and March 2015. Clinical information on participants was retrospectively collected from medical records. Results: More than 80% of participants corresponded to “dependence syndrome due to use of new psychoactive substances (NPS)”, according to the International Statistical Classification of Diseases and Related Health Problems 10th Revision (ICD-10). Although the drug-use situation improved in about 60% of participants, approximately 20% of participants were categori zed as “termination or discontinuation at initial diagnosis”. Concerning therapeutic details and outcome, although all eight hospitals were specialized in drug dependence, most participants did not access professional therapy, self-help groups or private rehabilitation facilities. However, it was found that better outcomes were relate d to receiving medical treatment for longer periods and accessing professional programs or non-medical social resources. On the other hand, the psychotic symptoms of about 11% of all participants persisted more than 1 month. It was suggested the one of the factors might be complicated with psyc hiatric diseases, especially diagnosed according ICD-10 as “F2:Schizophrenia, schizotypal and delusional disorders”. Conclusions: We have found that patients with NPS relating disorders have some different characteristics from usual drug dependent patients and revealed some important factors of better outcome for patients with new psychoactive-related disorders. We propose that it is necessary to provide new treatment programs and strategies more suitable for such kind of patients.

Financial Support: Japan agency for medical research and development

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Last Name: Tanibuchi

Degrees: MA MD Ph.D etc:: MD, Ph.D

Company Affiliation: Chiba Hospital

ID: 14
Initiation of STAMPOUT: Study of antibody for methamphetamine outpatient therapy in recreational methamphetamine abusers

Ryan Turncliff, PRA Health Sciences

Abstract Category: Program Descriptions

Abstract Detail: Human

Drug Category: Stimulants

Topic: Treatment

Abstract: AIM IXT-m200, also called ch-mAb7F9, is a chimeric monoclonal antibody (mAb) that binds methamphetamine (METH) with high affinity. Through the binding of METH in the bloodstream, IXT-m200 may decrease METH concentrations in the CNS, thereby decreasing pleasurable effects of METH. Over the longer term, when combined with conventional behavior modification therapy, IXT-m200 may reduce the frequency of METH use over time. The methodology of the first clinical study of IXT-m200 in METH users is presented. METHODS The objectives of this study are to determine the effect of IXT-m200 (IV: 6 mg/kg, 20 mg/kg, PBO) on 1) METH PK parameters, 2) METH subjective effects, and 3) to evaluate the safety and tolerability with concurrent weekly IV METH challenges in up to 126 subjects with METH use disorders. Following screening, subjects will receive a METH challenge (PBO and 30 mg METH, 4 hours apart) on Day 1 to assess tolerability, safety and subjective response to METH. Qualified subjects will then participate in double-blind assessment of METH challenges requiring a 23-day/22-night inpatient study followed by an extended follow-up period. On Day 4, IXT-m200 (IV: 6 mg/kg, 20 mg/kg) or PBO will be administered. METH challenges will be repeated weekly for up to 4 weeks (Days 5, 12, 19, 26) to evaluate the enduring effects of METH following IXT-m200 administration. Outpatient follow-up visits will occur weekly for several weeks and then every 3 weeks through Day 126. The primary endpoint of the study is a change in METH PK (eg: AUC, Cmax) following single IV doses. Secondary endpoints include: change in subjective effects as measured by Drug Effects Questionnaires (DEQ), safety and tolerability of IXT-m200 followed by METH challenges and PK of IXT-m200.

Financial Support: NIDA: U01 DA045366

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Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: PRA Health Sciences

Contact Title: Director,

ID: 15
Drug treatment seeking behavior subsequent to involuntary treatment among people who inject drugs in Tijuana, Mexico

Claudia Rafful, University of California San Diego

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Treatment

Abstract: Aims: To determine the role of involuntary drug treatment program experiences in subsequent voluntary drug treatment program utilization among people who inject drugs (PWID) in Tijuana, Mexico. Methods: In 2011, PWID who were at least 18-years old and reported injecting drugs in the prior month were enrolled in the parent study (El Cuete IV). Participants completed interviewer-administered surveys at baseline and every six months (13 visits). Cox regression was conducted to identify factors related to "any voluntary drug treatment" in the past 6-months (outcome) among those with no prior voluntary or involuntary treatment history at baseline (n=359) (Phase I). In 2015, a subsample of 25 participants underwent a semi structured qualitative interview to explore how PWID who had involuntarily received drug treatment at a center thought such an experience might affect their future treatment seeking behavior (Phase II). Results: In Phase I, we found no significant association between involuntary drug treatment and subsequent voluntary treatment seeking. Controlling for covariates, participants who perceived that staff at treatment centers treat clients with respect significantly increased likelihood of voluntary treatment seeking (Adjusted Hazard Ratios [AHR]= 3.1; 95% Confidence Limits [CL]= 1.5-6.7). Treatment seeking behavior significantly decreased among those who believed it would be difficult to get into a program (AHR= 0.4; 95% CL= 0.2-0.7). Qualitative interviews revealed that the pathway through which involuntary drug treatment limits future treatment seeking is through the mistreatment, stigmatization and discrimination received at centers. Conclusion: This study highlights the complexity of factors that drive treatment-seeking behavior. Individuals who may be in greater need of treatment may override the punitive conditions and mistreatment received at centers. Policy implications include primarily the professionalization of treatment providers and oversight of addiction treatment programs.

Financial Support: This research was funded by NIDA R37 DA019829. CR was supported by UC-MEXUS/CONACyT scholarship 209407/313533, UC MEXUS Dissertation Grant DI 15-42, Fogarty International Center D43TW008633, and NIDA R25 DA02640.

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Degrees: MA MD Ph.D etc:: Ph.D, M.S.

Company Affiliation: University of California San Diego

ID: 16
The impact of cannabis use on patients enrolled in opioid agonist therapy in Ontario, Canada

Joseph Eibl, Northern Ontario School of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: Aim: With the Canadian government legalizing cannabis in the year 2018, the potential harms to certain populations—including those with opioid use disorder—must be investigated. Cannabis is one of the most commonly used substances by patients who are engaged in medication-assisted treatment for opioid use disorder, the effects of which are largely unknown. In this study, we examine the impact of baseline and ongoing cannabis use, and whether these are impacted differentially by gender. Methods: We conducted a retrospective cohort study using anonymized electronic medical records from 58 clinics offering opioid agonist therapy in Ontario, Canada. One-year treatment retention was the primary outcome of interest and was measured for patients who did and did not have a cannabis positive urine sample in their first month of treatment, and as a function of the proportion of cannabis-positive urine samples throughout treatment. Results: Our cohort consisted of 644 patients, 328 of which were considered baseline cannabis users and 256 considered heavy users. Patients with baseline cannabis use and heavy cannabis use were at increased risk of dropout (38.9% and 48.1%, respectively). When evaluating these trends by gender, only female baseline users and male heavy users are at increased risk of premature dropout. Conclusion: Both baseline and heavy cannabis use are predictive of decreased treatment retention, and differences do exist between genders. With cannabis being legalized in the near future, physicians should closely monitor cannabis-using patients and provide education surrounding the potential harms of using cannabis while receiving treatment for opioid use disorder.

Financial Support: This work was supported by the Northern Ontario Academic Medicine Association

First Name: Joseph

Last Name: Eibl

Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: Northern Ontario School of Medicine

ID: 17
Reinforcing efficacy of cigarettes vs. little cigars in smokers differing in socioeconomic status

Jennifer Tidey, Brown University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Policy

Abstract: AIM: Rates of little cigar (LC) use are elevated among smokers of low socioeconomic status (SES). LCs look similar to cigarettes, but are manufactured differently and are not subject to the same taxes and regulations. This study used behavioral economic purchase tasks to compare the reinforcing efficacy of LCs and cigarettes in low and high SES smokers and to examine how varying cigarette price affects LC purchasing. METHODS: Participants were adults who smoked ≥ 10 cigarettes/LCs per day and were not trying to quit. A similar number of low and high SES participants were recruited. Participants used a cigarette purchase task (CPT) and LC purchase task (LCPT) to report the number of cigarettes and LCs that they would consume in 24 hours across a range of prices. ANOVAS were used to compare SES groups and products on behavioral economic indices. A cross-price task was used to examine effects of increasing cigarette price on LC purchasing, set at $1. RESULTS: Participants (n = 35) were 39 years of age, 51% male, 46% African American, and smoked 15 cigarettes/LCs per day. Cigarettes had higher purchase intensity, breakpoint, Pmax and Omax than LCs, with no differences by group. There was a significant effect of Product on alpha, with LCs having a lower essential value than cigarettes across groups. The alpha for cigarettes did not differ by group but the alpha for LCs was significantly higher in low SES participants. Cross-price elasticity was higher in low SES participants (0.5 vs. 0.1), indicating greater substitutability of LCs. CONCLUSION: These findings indicate that smokers prefer cigarettes but will purchase LCs when cigarette prices increase, particularly low SES smokers. These results have implications for the FDA's proposed reduced-nicotine standard for cigarettes, as low SES smokers may switch to LCs unless this standard is also applied to LCs.

Financial Support: This research was supported by a developmental pilot award from NIDA grant P50DA036114 (S. Higgins, PI). This content of this presentation is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health or the Food and Drug Administration.

First Name: Jennifer

Last Name: Tidey

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Brown University

Contact Title: Assistant Professor

ID: 18
Relationship between fMRI response during a nonverbal memory task and marijuana use in college students

Alecia Dager, Yale University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Imaging

Abstract: Marijuana is one of the most widely used substances among college students, with peak use occurring between ages 18-22. Previous research suggests memory dysfunction occurs in adolescent and young adult marijuana (MJ) users, but the neural correlates are unclear. Moreover, the regions underlying memory function, such as hippocampus and prefrontal cortex, are particularly susceptible to MJ effects. We examined prefrontal and hippocampal functional magnetic resonance imaging (fMRI) response to a figural encoding and recognition task among freshman college students with varying degrees of MJ involvement. Participants were 64 first-year college students, ages 18-20, who performed a visual encoding and recognition task during fMRI. MJ use was ascertained via online survey for 3 months prior to scanning; 27 individuals reported past 3-month MJ use, and 33 individuals did not. fMRI response was modeled during encoding based on whether targets were subsequently recognized (i.e., correct encoding), and during recognition based on target identification (i.e., hits). fMRI response in left and right inferior frontal gyrus (IFG) and hippocampal regions of interest was examined between MJ users and controls.

There were no differences between MJ users and controls on fMRI response during encoding, although MJ users failed to significantly activate the hippocampus. During correct recognition, MJ users showed less fMRI response in bilateral hippocampi and left IFG. Heavier MJ involvement was associated with lower fMRI response in left hippocampus and left IFG.

This study provides preliminary evidence of marijuana dose-related prefrontal and hippocampal dysfunction during recognition memory in college students. These results parallel earlier evidence of altered hippocampal response during verbal learning in adolescent marijuana users. Moreover, these findings may contribute to our previously identified decrements in academic performance in college marijuana users and could have substantial implications.

Financial Support: Funded by NIAAA (AA016599 Pearlson) and NIDA (DA038207, Dager)

First Name: Alecia

Last Name: Dager

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Yale University

ID: 19
Evaluating the translational potential of NIDA-sponsored behavioral clinical trials

Stephen Magura, Western Michigan University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Other

Abstract: Aim: This is a preliminary study to estimate the potential for results of behavioral/integrative clinical trials sponsored by the National Institute on Drug Abuse (NIDA) to be translated into community treatment and prevention programs. Methods: The sample was 22 randomly selected behavioral or "integrative" (i.e., including medications) R01 human clinical trials funded by NIDA in FY2006. A bibliographic search for published peer-reviewed articles through 2016 was conducted for each such study, which were assessed for: report of primary outcome(s), statistical significance of outcome(s), effect sizes, clinical interpretability of effects, and the Cochrane Reviews GRADE quality of research factors. Results: Primary outcomes were published for 68% (n=15) of the clinical trials, other outcomes (secondary or ancillary) were published for an additional 18% (n=4), and no reports of any outcomes could be found for 14% (n=3). Statistically significant effects for a primary outcome were reported for 73% (n=11) for the clinical trials and effect sizes were given for the same 73%. The reported effects were clinically interpretable for 67% (n=10) of the trials. The 15 studies reporting primary outcomes were assessed on 11 variables derived from the five GRADE factors, with the highest numbers of "fails" being attributable to high subject attrition (27%), low statistical power (27%), questionable outcome measure validity (27%), and analytical inadequacy (13%). According to the Cochrane Reviews criteria, the quality of evidence provided by these randomized clinical trials did not require downgrading for 27% of the trials, required downgrading by one level for 33%, required double downgrading for 27%, and required triple downgrading for 13%. Conclusions: NIDA R01 randomized clinical trials are well-funded and expected to adhere to state of the art research standards, yet 1/3 failed to report on their primary outcomes and of the remainder, nearly 3/4 required downgrading of their research evidence.

Financial Support: None.

First Name: Stephen

Last Name: Magura

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Western Michigan University

Contact Title: Director

ID: 20
Intensive motivational interviewing for heavy drinking among women

Douglas Polcin, Behavioral Health and Research Studies

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Alcohol

Topic: Treatment

Abstract: Purpose: The detrimental effects of heavy drinking are disproportionately more severe for women than men. Even with fewer years of drinking, women average more serious medical, psychiatric, and social consequences than men. Methods: As part of an ongoing study, 186 women with alcohol problems were randomly assigned to receive a 9-session intensive motivational interviewing (IMI) intervention (N=92) or a standard single session of MI along with 8 sessions of nutrition education (N=94) to achieve time equivalence. Follow-up interviews are being conducted at 2-, 6-, and 12- months. Primary outcomes include percent drinking days (PDD) and percent heavy drinking days (PHDD) (4+ drinks) over the past 60 days. Additional measures include psychiatric symptoms, drug abuse, and relationship satisfaction. Longitudinal changes are assessed using GEE models. Results: Most of the sample are white (82.8%), married (53.8%) and college educated (60.1%). The mean age is 50.8 (sd=11.4). Relative to baseline drinking, both study conditions show significant, sustained reductions in drinking (p
Financial Support: Supported by NIAAA grant AA022857

First Name: Douglas

Last Name: Polcin

Degrees: MA MD Ph.D etc:: Ed.D.

Company Affiliation: Behavioral Health and Research Studies

ID: 21
Drug craving and use in response to prolonged exposure for PTSD

Jessica Peirce, Johns Hopkins University School of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: Prolonged Exposure (PE) is a “gold standard” treatment for PTSD, but is not offered to substance users due to concern about exacerbation of substance use disorder (SUD) symptoms. Aim: The present study is drawn from a larger trial testing monetary incentives to increase attendance to PE in SUD patients. Planned analyses examined the within- and across-session changes in self-reported drug craving and use in PE attenders to determine whether participation worsened SUD symptoms. Methods: Drug craving was measured by Visual Analogue Scales (0-100) for methadone, benzodiazepines, heroin, other opioids, and cocaine before and after each PE session. Drug use was based on self-reported number of days of use in the past week for alcohol, cocaine, heroin, benzodiazepines, and marijuana and any drug. Only participants who attended one or more sessions and only sessions 1-9 were included. Results: All 44 participants were in opioid substitution treatment; 77% were women and 66% were White. Slightly over half were in the attendance incentive group (59%). Self-reported craving decreased by the end of session for benzodiazepines in Session 1 (14.4 to 9.8; $p = .035$), heroin in Session 1 (14.0 to 8.4; $p = .02$) and Session 3 (9.5 to 5.2; $p = .023$), and cocaine in Session 1 (9.4 to 5.5; $p = .02$). The only statistically significant increase occurred for cocaine craving in Session 8 from 2.2 to 2.4 ($p = .041$). Drug craving dropped across sessions for methadone, heroin, and other opioids, with no increases. Self-reported drug use patterns fluctuated across sessions for “any” drug, cocaine, heroin, benzodiazepines, and marijuana, but no session was significantly higher than baseline drug use before Session 1. Conclusion: Participation in Prolonged Exposure did not exacerbate desire for or use of any drug in substance users in treatment, suggesting that concern about implementation of PE in this population may be unfounded.

Financial Support: NIDA R34DA032689

First Name: Jessica

Last Name: Peirce

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Johns Hopkins University School of Medicine

ID: 22
Anhedonic symptoms of depression are related to cocaine use severity: A machine learning approach

Margaret Wardle, University of Texas Health Science Center

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Stimulants

Topic: Other

Abstract: Aim: Identifying modifiable factors associated with cocaine use is important to reducing cocaine use. Depressive symptoms may contribute to cocaine outcomes, but tests of this relationship have produced mixed results. This may be because depressive symptoms are heterogeneous, including both negative mood (i.e. sadness) and anhedonia (i.e. lack of interest or pleasure in activities). Anhedonia has been hypothesized to be particularly important to drug use, as individuals may use drugs more when alternate rewards are not enjoyable. Indeed, anhedonia is a stronger predictor of post-treatment relapse to smoking and cocaine use than negative mood. Here we examined whether anhedonic symptoms were more strongly related to recent cocaine use, compared to other depressive symptoms. Methods: 223 cocaine users completed the Beck Depression Inventory-II (BDI-II), which contains both anhedonia (e.g. “Loss of pleasure”, “Loss of interest”) and negative mood (e.g. “Crying”, “Sadness”) items, and the Addiction Severity Index, which determines frequency of cocaine use in the last 30 days. Results: We used two machine learning algorithms to model past 30 day use as a function of the individual BDI-II items. The first algorithm, component-wise gradient boosting (CGB) selected 7 BDI-II items as most highly related to recent use. The second algorithm used backwards elimination to maximize parsimony by modeling recent use as a function of just those 7 items, reducing the model to 3 items: crying ($\chi 2 = 7.20$, $p = 0.066$), appetite changes ($\chi 2 = 10.97$, $p = 0.012$), and the strongest predictor, loss of interest ($\chi 2 = 13.22$, $p = 0.004$). Conclusion: Our results suggest that anhedonic symptoms, and particularly loss of interest in other activities, are the depressive symptoms most strongly related to severity of recent cocaine use. Although the cross-sectional design is a limitation, this study suggests that anhedonia is a potentially important target for reducing cocaine use.

Financial Support: K08DA040006 PI: Margaret Wardle

First Name: Margaret

Last Name: Wardle

Company Affiliation: University of Texas Health Science Center

ID: 23
HIV prevention in rural jails: Implications for re-entry risk reduction

Michele Staton, University of Kentucky, College of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Behavior

Abstract: Aim: Rural women are at heightened risk for health consequences associated with substance misuse and currently no targeted interventions exist to reduce HIV risk in this population. Jails provide an underutilized opportunity for outreach to women at high-risk for HIV in understudied rural communities of Appalachia. Methods: High-risk rural women were randomized to receive either the NIDA Standard education intervention (n = 201) or the NIDA Standard plus motivational interviewing to reduce high-risk behaviors (MI-HIV; n = 199) while in jail. Outcomes focused on HIV risk behaviors 3 months post-release from jail. Results: Robust decreases in HIV risk behaviors were observed at follow-up across intervention conditions. Although participants in the NIDA Standard + MI-HIV group showed reductions in the reported outcomes compared to the NIDA Standard group (OR = 0.74–0.93), these estimates did not reach statistical significance. Conclusion: This study demonstrates that HIV risk reduction education interventions can be associated with reduction in high-risk behaviors. With the public health implications of the opioid epidemic, particularly in rural communities, these findings support the need for increased access to treatment and prevention in criminal justice venues.

Financial Support: National Institute on Drug Abuse of the National Institutes of Health under Awards R01DA033866, K02DA035116, and T32DA035200 and the National Science Foundation under Award 1247392.

First Name: Michele

Last Name: Staton

Degrees: MA MD Ph.D etc:: Ph.D., M.S.W.

Company Affiliation: University of Kentucky, College of Medicine

ID: 24
Mentorship for addiction problems (MAP)

Kathlene Tracy, New York University School of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Treatment

Abstract: Aims Mentorship for Addiction Problems (MAP) is a new behavioral treatment that formalizes client-to-client mentorship relationships as an adjunct to standard outpatient substance abuse treatment. It is comprised of selection, training, and supervision procedures to enable successful recovering patients to serve as mentors for clients who are early in the recovery process. We tested the preliminary efficacy of MAP in reducing substance use. Methods 65 participants (17 Later Recovery Participants/LRP and 48 Early Recovery Participants/ERP) with substance use disorders were randomized to MAP+TAU or TAU. Within MAP, for each cohort, a pool of 4-5 mentors were formed and engaged in mentoring activities for 24 weeks until 12-13 mentees who were newly admitted participated in MAP for 12 weeks. LRP met lifetime diagnosis for substance abuse or dependence and were 6 months abstinent from drugs and alcohol. ERP met current diagnosis for substance abuse or dependence and were actively using substances. Behavioral and biological measures were conducted at baseline, weekly, monthly, and termination for all participants and during the 12 week follow-up for ERP. Results Agreement between objective Urine Toxicology Tests and Substance Use Report (SUR) was above 90%. As a result, SUR data was utilized for a more comprehensive assessment of participant use. Substance use (heroin, cocaine or alcohol) declined in both conditions for ERP (N=48) over the 1-12 week study period (p=0.0306); however, on average, ERP in the MAP intervention used significantly fewer days than controls during treatment weeks 1-12 (4.9 [SD=7.5] days versus 14.5 [SD=20.4] days, p=0.0380) and during follow-up weeks 13-24 (1.0 [SD=3.6] day versus 5.0 [SD=7.9] days, p=0.0304). Conclusion MAP shows promise in assisting in the reduction of substance use early in treatment when vulnerability and risk for relapse is high.

Financial Support: This work was supported by NIDA (R34DA034898) and NIAAA (R01AA016160).

First Name: Kathlene

Last Name: Tracy

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: New York University School of Medicine

ID: 25
User experience of four point-of-collection oral fluid devices by Brazilian traffic agents – preliminary findings

Flavio Pechansky, Center for Drug and Alcohol Research, Federal University of Rio Grande do Sul

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Technology Issues

Abstract: AIM. Brazil has 23.4 deaths/100,000 inhabitants/year in traffic, but the role of drugs is still unknown in the country, since their screening is not routine by traffic agents. Methods to understand the role of drugs in the overall death rates are much needed. We describe the user experience of Brazilian traffic agents when four handheld point-of-collection oral fluid devices for drug screening in routine road blocks. METHOD. Four oral devices were evaluated: the DDS2™, the DOA MultiScreen™, the Draeger DrugTest 5000™ and the Multi-Drug Multi-Line Twist Screen Device™. Fourteen agents were obtained oral fluid from 164 drivers, and performed 37 evaluations of the devices, focusing on: overall operational success; concordance with observed clinical signs; acceptable time for oral fluid collection; acceptable time for sample analysis; overall hygiene and safety; enough operational instructions in the package; overall simplicity for roadside operation; specific hygiene of saliva collection; easiness to prepare and analyze the sample. Variables were weighted based on an expert panel, yielding an overall composite score, ranging from 1 (poor) to 10 (excellent). RESULTS. The variables weighted most in the composite scores were: 14% - overall simplicity for roadside operation; 13% - operational success; 12% (each) - time to collect saliva sample/time to analyze samples; 11% - easiness to prepare and analyze sample; 10% - concordance with observed clinical signs; 9% (each) - overall hygiene and safety/enough operating instructions; 8% -specific hygiene of saliva collection. Device overall scores ranked as follows: DOA MultiScreen™: 4.9/10; Draeger DrugTest 5000™: 8.2/10; Multi-Drug Multi-Line Twist Screen Device™: 8.4/10; DDS2™: 8.8/10. CONCLUSION. Three out of four devices were considered useful. Simplicity of use (handling, sampling analysis and reliability) and agreement with clinical findings obtained by agents best define their utility. Further studies with other sample profiles are needed to confirm these findings.

Financial Support: Brazilian Secretariat for Drug and Alcohol Policies, #07/2014

First Name: Flavio

Last Name: Pechansky

Degrees: MA MD Ph.D etc:: M.D., Ph.D.

Company Affiliation: Center for Drug and Alcohol Research, Federal University of Rio Grande do Sul

Contact Title: Director, Center for Drug and Alcohol Research

ID: 26
Trends in engagement in the cascade of care for opioid use disorders, Vancouver, Canada, 2006-2016

M. Eugenia Socias, University of British Columbia

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: Aim: A cascade-of-care framework has been proposed to identify and address implementation gaps in addiction medicine. Using this framework, we characterized longitudinal changes in engagement in care for opioid use disorders (OUD) in Vancouver, Canada. Methods: Using data from two cohorts of people who use drugs, we assessed engagement with five stages of the OUD care cascade among 1615 ≥ daily illicit opioid users: unlinked to care; linked to addiction care; initiated opioid agonist treatment [OAT]; retained in OAT; and stable. We evaluated changes in engagement with each step over time, adjusting for socio-demographic characteristics, HIV/HCV status, substance use patterns, and social-structural exposures. Results: Between 2006 and 2016, the proportion of participants unlinked to care decreased from 26.8% to 22.1% (p=0.005). Conversely, increases were seen in initiation (67.2% to 70.6%, p=0.013) and retention in OAT (29.1% to 36.6%, p=0.035), and stability (10.4% to 17.5%, p=0.006). In adjusted analyses, later calendar year of observation was associated with increased odds of retention in OAT (Adjusted Odds Ratio [AOR] = 1.02, 95% Confidence Interval [CI]: 1.01–1.04) and stability (AOR=1.03, 95% CI: 1.01–1.06), but not with linkage to addiction treatment (AOR=1.02, 95% CI: 1.00–1.04) or initiation of OAT (AOR 1.00, 95% CI: 0.98–1.02). Conclusion: Temporal improvements in OUD care cascade indicators were observed. However, only a third of study participants were retained in OAT in 2016. These findings suggest the need for novel approaches to improve engagement in the OUD care cascade to address the escalating opioid-related overdose crisis.

Financial Support: This work was supported by the US National Institute on Drug Abuse (NIDA) at the US National Institutes of Health (NIH; U01-DA038886 and U01-DA021525). MES is supported by Michael Smith Foundation for Health Research (MSFHR) and Canadian Institutes of Health Research (CIHR) fellowship awards. M-JM is supported in part by the NIH (U01-DA021525), a Scholar Award from MSFHR and a New Investigator award from the Canadian Institutes of Health Research (CIHR). EW is supported in part by a Tier 1 Canada Research Chair in Inner City Medicine. TK is supported in part by a CIHR Foundation Grant (20R74326). JM is supported by the British Columbia Ministry of Health and through an Avant-Garde Award from NIDA at the NIH (1DP1DA026182). KH is supported by the St. Paul's Hospital Foundation, a CIHR New Investigator Award and MSFHR Scholar Award. SN is supported by a Health Professional Investigator Scholar Award from MSFHR.

First Name: M. Eugenia

Last Name: Socias

Degrees: MA MD Ph.D etc:: MD, MSc

Company Affiliation: University of British Columbia

ID: 27
A randomized controlled trial of buprenorphine for prisoners: Official rearrest outcomes

Michael Gordon, Friends Research Institute

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: Aims. To examine official state arrest records for the following outcomes: 1) any arrest (yes v. no), 2) time to arrest, and 3) arrest severity (high v. low) for 211 individuals participating in a randomized controlled trial of prison initiated buprenorphine/naloxone (b/n) in Baltimore, MD. Methods. This secondary analysis compares buprenorphine initiated prior to release (n=104) versus buprenorphine initiated immediately after release from prison (n=107). Participants were 211 male (n=148) and female (n=63) prisoners who had pre-incarceration DSM-IV diagnosis of opioid dependence. Official arrest data in the one year following release from prison were obtained from the Maryland Department of Public Safety and Correctional Services Criminal Justice Information System. Binary logistic regression and Cox proportional hazards regression were used to analyze data. Results. There was no significant between-condition difference during the one year post-release period in the likelihood of arrest (b/n in prison: 50.0% v. after release: 41.4%; p=0.17). Male participants were 2.76 times more likely than female participants to be arrested within one year post-release (Men, 52.4%: Women, 29.3%; p=0.003). There was no significant effect of treatment Condition on number of days to first arrest (b/n in prison: Mean=170.8 [SD=113.1] v. after release: Mean=205.7 [SD=104.6]; p=0.10). There were no differences between treatment condition as well as gender in the proportion of arrests for high severity crimes (27.5% of the total sample were arrested for at least one high severity crime during the one-year post-release period). Conclusions. Initiating b/n before compared to after release did not significantly alter the likelihood of arrest in the year after release. One-year post-release arrest findings were consistent with the findings of Kinlock et al. (2009) of no significant difference between post-release arrest rates from prisoners treated with methadone in prison (53%) compared to after release from prison (59%).

Financial Support: Funded by NIDA: Grant Number 5R01DA021579; Study drug (buprenorphine) provided free from Reckitt Benckiser

First Name: Michael

Last Name: Gordon

Degrees: MA MD Ph.D etc:: DPA

Company Affiliation: Friends Research Institute

ID: 28
The neighborhood retail environment & pedestrian injury risk: The unique role of alcohol outlets

Elizabeth Nesoff, Columbia University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Alcohol

Topic: Epidemiology

Abstract: Background: Alcohol outlet density has been associated with increased pedestrian injury risk in several studies. It is unclear whether this is because alcohol outlets are located in dense retail areas with heavy pedestrian traffic or whether alcohol outlets contribute a unique neighborhood risk. Aim: To compare pedestrian injury risk around alcohol outlets to the relative risk around other, similar retail outlets that do not sell alcohol. Methods: A spatial analysis was conducted on census block groups in Baltimore City. Data included pedestrian injury EMS records from January 1, 2014, to April 15, 2015 (n=858); locations of alcohol outlets licensed for off-premise (n=726) and on-premise consumption (n=531); and corner (n=398) and convenience stores (n=192), small food stores which do not sell alcohol. Negative binomial regression was used to determine the relationship between retail outlet count and pedestrian injuries, controlling for traffic volume, population density, vacant housing, pedestrian volume, and median household income. Spatial correlation was assessed and regression inference adjusted accordingly. Results: Each one-unit increase in the number of off-premise alcohol outlets was associated with a 9.5% increase in the relative risk of neighborhood pedestrian injury when controlling for count of convenience and corner stores (RR=1.095, 95% CI=(1.047, 1.146), p < 0 .0001). The attributable risk was 4.9% (95% CI=(0.3%,8.9%)) or 41 extra injuries. On-premise alcohol outlets were not significant predictors of neighborhood pedestrian injury risk in multivariable models (RR=0.98, p=0.38). Conclusion: Off-premise alcohol outlets impact pedestrian injury risk, even when controlling for other retail locations. Findings reinforce the importance of alcohol outlets in understanding neighborhood pedestrian injury risk and may provide evidence for informing policy on liquor store licensing, zoning, and enforcement. Support: National Institute on Alcohol Abuse and Alcoholism (Grant F31AA023716) and National Institute on Drug Abuse (Grants T32DA031099 and DA034314).

Financial Support: National Institute on Alcohol Abuse and Alcoholism (Grant F31AA023716) and National Institute on Drug Abuse (Grants T32DA031099 and DA034314).

First Name: Elizabeth

Last Name: Nesoff

Degrees: MA MD Ph.D etc:: PhD, MPH

Company Affiliation: Columbia University

ID: 29
Law enforcement reports of increasing methamphetamine use and associations with the opioid epidemic

Mance Buttram, Nova Southeastern University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Stimulants

Topic: Epidemiology

Abstract: Aims: Recent reports have noted increases in arrests and adverse reactions related to stimulant use, especially methamphetamine. This presentation examines methamphetamine use trends from the perspective of a national sample of law enforcement investigators in the U.S. Methods: Qualitative data are drawn from a quarterly survey of drug diversion and use trends completed by a national sample of law enforcement and regulatory agencies (N=250). Data available for analyses were collected between 3rd quarter 2013 and 1st quarter 2017. To gain additional insight, a brief questionnaire about methamphetamine use trends was completed by a subsample of survey respondents (N=98) in June 2017. Results: Law enforcement respondents generally reported that heroin/opioid use and diversion continued to be their biggest problem over the study period, but that methamphetamine use was increasing in their jurisdictions, especially since mid-2015. The most prevalent users of methamphetamine are young White males of lower socioeconomic status. Survey respondents reported methamphetamine: 1) being used among heroin/opioid users (Arkansas, Florida, Ohio, Tennessee, Wisconsin); 2) taking the place of heroin/opioids because of heroin/opioid overdose deaths and increasing heroin/opioid street prices (New Hampshire, Michigan, Wisconsin); and being combined with heroin/opioids and consumed as a “speedball” or “super mix” (North Carolina, Virginia). Conclusions: The findings demonstrate that while most law enforcement jurisdictions continue to confront problems related to the opioid epidemic, methamphetamine use and related problems are increasing. Location-specific factors (e.g., opioid overdose deaths and price) appear to affect methamphetamine use patterns, including opioid-methamphetamine polysubstance use, which can be particularly dangerous. Highly potent adulterants (e.g., illicit fentanyl) added to both methamphetamine and heroin likely compound the risks for polysubstance users. Given the geographic diversity of the observed increases in methamphetamine use, law enforcement, public health officials, and substance abuse treatment providers must be attuned to this emerging drug trend.

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First Name: Mance

Last Name: Buttram

Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: Nova Southeastern University

ID: 30
Incidence of newly diagnosed opioid use disorder in veterans with chronic pain prescribed opioids

Tessa Rife, San Francisco Veterans Affairs Health Care System

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: Aims: The increase in opioid prescribing for pain and opioid use disorders (OUD) represents a national public health problem. Guidelines recommend identification and treatment of OUD to enhance patient safety. We sought to examine the incidence of new OUD diagnoses among chronic pain patients evaluated by a multidisciplinary Prescription Opioid Safety Team (POST). Methods: A retrospective chart review was conducted in chronic pain patients prescribed opioids referred to POST August 2015 through June 2017. Patients not prescribed opioids were excluded. Prevalence of existing and incidence of new OUD diagnosis (Diagnostic and Statistical Manual of Mental Disorders 5) were examined. OUD severity and safety recommendations were described. Results: Of 140 referrals, 118 met inclusion criteria. Patients were predominantly male (n=115, 98%), age 62±9.8, and 40 (34%) had previously diagnosed OUD: 14 (35%) to prescription opioids, 8 (20%) to heroin, and 18 (45%) to both. POST evaluation resulted in 29 (24%) new OUD diagnoses. Of the 69 total with OUD, most had severe (n=25, 36%), followed by moderate (n=24, 35%), and mild (n=20, 29%). Safety recommendations included overdose education and naloxone distribution (n=91, 77%), non-opioid pain medications (n=87, 74%), urine drug screening (n=77, 65%), opioid tapering (n=76, 64%), drug monitoring review (n=71, 60%), and buprenorphine (n=51, 43%) or methadone maintenance (n=24, 20%). Common referrals were pain management (n=73, 62%), mental health treatment (n=40, 34%), pain complementary and alternative therapies (n=30, 25%), and substance use treatment (n=26, 22%). Conclusions: Chronic pain patients prescribed opioids had a high prevalence of OUD. Nearly half of patients with OUD were not previously diagnosed as such. Identification of new OUD diagnosis by an interdisciplinary addiction and pain specialist team resulted in many new recommendations/referrals to improve opioid safety. Future research should examine long-term outcomes related to interdisciplinary team consultation for chronic pain patients prescribed opioids.

Financial Support: San Francisco Veterans Affairs Health Care System

First Name: Tessa

Last Name: Rife

Degrees: MA MD Ph.D etc:: PharmD, BCGP, CACP

Company Affiliation: San Francisco Veterans Affairs Health Care System

ID: 31
Reduced executive control connectivity in women vs. men with chronic and acute nicotine exposure

Julie McCarthy, McLean Hospital, Harvard Medical School

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Sex Differences

Abstract: AIM: Relative to men, women experience greater difficulty quitting smoking. Such sex differences may be explained by disrupted communication between brain regions involved in cognitive control given the link between relapse and cognitive dysfunction. Within the executive control network (ECN), reduced interhemispheric coupling is associated with cognitive deficits and relapse. Sex differences in quitting smoking may also be due to poor corticostriatal coupling between key ECN hubs and dorsal striatal (DS) regions promoting habit formation/maintenance. We aimed to determine the nature of sex differences in interhemispheric ECN connectivity and connectivity between the dorsolateral prefrontal cortex (DLPFC, a key ECN hub) and DS. Connectivity was examined in the context of chronic and acute nicotine exposure to understand the extent to which nicotine modulates sex differences. METHODS: Thirty-six smokers (19 women) and 17 non-smokers (8 women) completed a resting state functional magnetic resonance imaging scan. Non-smokers were scanned after placebo and 2mg nicotine lozenge. Interhemispheric correlation values were calculated between the left/right ECN, while correlation values for DLPFC-DS coupling were calculated within hemisphere. RESULTS: In smokers, women had less interhemispheric ECN ($p = 0.009$) and DLPFC-DS coupling ($p = 0.003$) than men. In non-smokers, a sex x drug interaction was significant ($p = 0.032$) for DLPFC-DS but not ECN coupling. Nicotine, but not placebo, administration elicited weaker DLPFC-DS coupling in women compared to men ($p = 0.036$). CONCLUSIONS: Nicotine dependent women showed less interhemispheric ECN and DLPFC-DS coupling than men. In non-smokers, acute nicotine reduced DLPFC-DS coupling in women, mirroring the sex difference noted in chronic smokers. These findings suggest that sex differences in DLPFC-DS coupling are mediated by nicotine. Given that interhemispheric ECN coupling was not impacted by acute nicotine it is unclear whether women with such reduced coupling are more prone to smoke or if interhemispheric ECN coupling is reduced following more chronic use. Supported by: NIDA grants T32DA015036; K01DA029645, K02DA042987

Financial Support: T32DA015036; K01DA029645, K02DA042987

First Name: Julie

Last Name: McCarthy

Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: McLean Hospital, Harvard Medical School

ID: 32
Ecological momentary assessments optimize sexual risk reduction among gay and bisexual men enrolled in a methamphetamine abuse treatment program

Cathy Reback, Friends Research Institute

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Stimulants

Topic: Technology Issues

Abstract: Aim: Methamphetamine-using gay and bisexual men (GBM) demonstrate elevated rates of HIV infection due to increased engagement in sexual risk behaviors, including condomless anal intercourse. This pilot study tested whether Ecological Momentary Assessments (EMA) self-monitoring of methamphetamine use, HIV sexual risk behaviors, triggers, and moods delivered 5x daily via a smartphone app, and accompanied by a web-based visualization dashboard with and without counseling, would optimize outcomes of an outpatient methamphetamine treatment program for GBM. Methods: From December 2013 through July 2014, 34 GBM who enrolled in an outpatient treatment program to reduce or eliminate their methamphetamine use opted-in to an 8-week EMA pilot study. Participants were randomized into either a condition that reviewed their EMA data with a counselor (EMA+Dashboard+Counselor; n=18) once weekly for 30 minutes, or by themselves (EMA+Dashboard; n = 16). Participants were statistically matched to 102 GBM who had previously participated in the same outpatient treatment program. Methamphetamine use and sexual risk outcome data were analyzed using mixed-effect logistic and negative binomial regression models. Results: EMA pilot study participants and matched historical controls both demonstrated significant reductions in self-reported (Coef. = -0.61, CI [-1.08, -0.14]) and biomarker-confirmed (Coef. = -0.17, CI [-0.30, -0.03]) methamphetamine use and in engagement in condomless anal intercourse (Coef. = -1.00, CI [-1.79, -0.20]). Moreover, participants randomized into the EMA+Dashboard+Counselor condition demonstrated reductions in condomless anal intercourse of significantly greater magnitude (Condition*Time Interaction Coef. = -3.97, CI [-6.76, -1.19]) than the historical matched controls. Conclusion: Given the high HIV prevalence rate among methamphetamine-using GBM, reducing sexual risk behaviors is critical. Outpatient methamphetamine treatment and HIV sexual risk reductions interventions for GBM may be optimized by self-monitoring via smartphone EMA coupled with counselor-guided review and discussion of participant's data.

Financial Support: Supported by NIMH grant #P30MH58107

First Name: Cathy

Last Name: Reback

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Friends Research Institute

ID: 33
Factors associated with medication-assisted treatment adherence for offenders: The role of drug cravings and socialization

Yang Yang, University of Louisville

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: There is an increasing adoption of medication-assisted treatment (MAT) in treating patients with substance use problems, the practice of which is comprised of medication and counseling services to enhance patients' well-being (Substance Abuse and Mental Health Services Administration, 2016). AIM. Given the efficacy of MAT (Gavin, 2012; Krook et al., 2002), research is needed to gain a better understanding of the predictors of MAT utilization. METHODS. The current study analyzed data from 119 male offenders (75% reporting heroin as their primary drug) who were referred to community-based MAT, to examine if the progression of drug cravings at early treatment stage (assessed at intake for seven days) and socialization (i.e., family cohesion, peer criminology, social support) predicted MAT medication and substance abuse counseling adherence. RESULTS. The results of group-based trajectory analyses on the daily assessments of drug cravings identified three distinctive trajectory groups of craving progression: Low Profile, Intermediate, and Persistent Groups. The results of ordinal logistic analyses revealed that these trajectories significantly predicted MAT medication adherence, after controlling for socialization and two covariates (i.e., days in treatment, drug use severity). Relative to Low Profile Group, Intermediate Group reported a higher odds of missing one or more medication doses. There was no difference between other trajectory groups in medication adherence. In addition, high levels of family cohesion predicted a lower odds of missing one or more substance abuse counseling sessions. CONCLUSIONS. These findings suggest that treatment adherence could be enhanced by monitoring drug cravings at an early treatment stage and adjusting MAT treatment plans. Additionally, there may be value with integrating family-based therapy in substance treatment plans to enhance family cohesion and subsequent treatment adherence. The study also highlights the value of using an ecologically valid assessment of drug cravings and innovative technologies in implementing research protocols.

Financial Support: This study was funded by a grant to Texas Christian University from the National Institute on Drug Abuse, the National Institutes of Health (DA016190, Kevin Knight, principal investigator), with support from the Center for Substance Abuse Treatment of the Substance Abuse and Mental Health Services Administration, the Centers for Disease Control and Prevention, and the National Institute on Alcohol Abuse and Alcoholism (all part of the U.S. Department of Health and Human Services), and from the Bureau of Justice Assistance of the U.S. Department of Justice.

First Name: Yang

Last Name: Yang

Company Affiliation: University of Louisville

ID: 35
Factors associated with discontinuation of methadone maintenance therapy (MMT) among persons who also use alcohol in Vancouver, Canada

Jan Klimas, BC Centre on Substance Use

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Treatment

Abstract: Background: We sought to examine the factors associated with discontinuation of MMT among persons on methadone who use alcohol. Methods: We evaluated the impact of drug-related and other factors on discontinuation of MMT among persons enrolled in MMT and who reported any use of alcohol, and who were enrolled in two community-recruited prospective cohorts of people who use illicit drugs (PWID). Extended Cox models with time-dependent variables identified factors independently associated with time to first MMT discontinuation. Results: Between December 2005 and 2015, 823 individuals on MMT also reported using alcohol at least once, were included in these analyses. During the study period, 391 (47.5%) discontinued methadone. Daily heroin injection (Adjusted Hazard Ratio [AHR]= 2.67, 95% Confidence Interval [CI]: 2.10 – 3.40) and homelessness (AHR= 1.42, 95% CI: 1.10 – 1.83) were positively associated with MMT discontinuation, whereas receiving other concurrent addiction treatment in addition to MMT (AHR= 0.07, 95% CI: 0.05 – 0.08), as well as >60 ml methadone dose (AHR = 0.48, 95% CI: 0.39 – 0.60); Hepatitis C virus seropositivity (AHR= 0.65, 95% CI: 0.47 – 0.90); and HIV seropositivity (AHR= 0.72, 95% CI: 0.57 – 0.91) were negatively associated with MMT discontinuation. Heavy alcohol use was not independently associated with MMT discontinuation. Conclusions: This study reinforces the known risks of continued heroin injection and homelessness for MMT discontinuation among individuals who also consume alcohol and highlights the protective effect of both MMT dose and receipt of concurrent addiction treatment.

Financial Support: The authors thank the study participants for their contribution to the research, as well as current and past researchers and staff. US National Institutes of Health supported the study (R01DA021525, U01DA038886, R25DA037756). This research was undertaken, in part, thanks to funding from the Canada Research Chairs program through a Tier 1 Canada Research Chair in Inner City Medicine that supports Dr. Evan Wood. Dr. Milloy is supported in part by the National Institutes of Health (R01-DA021525) and the Michael Smith Foundation for Health Research. His institution has received unstructured funds from NG Biomed, Ltd., to support his research. The ELEVATE grant: Irish Research Council International Career Development Fellowship – co-funded by Marie Cure Actions (ELEVATEPD/2014/6); and the European Commission grant (701698) supports Dr. Klimas. Dr. Hayashi is supported by the Canadian Institutes of Health Research New Investigator Award (MSH-141971).

First Name: Jan

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Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: BC Centre on Substance Use

ID: 36
Cocaine-related differences in neural loss aversion and the moderating effects of socioeconomic status

Andréa Hobkirk, Penn State College of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Stimulants

Topic: Imaging

Abstract: Aim: Cocaine use is associated with neural changes in the striatum and ventromedial prefrontal cortex (VMPFC) that result in altered reactivity to gain and loss on tasks measuring loss aversion. Cocaine users often live in impoverished social and economic conditions that can further exacerbate neural changes in reward reactivity. We currently have a limited understanding of how cocaine use and socioeconomic conditions interactively affect brain function and decision making. The current analysis compared neural loss aversion between active cocaine users (n=21) and non-drug users (n=15) and assessed socioeconomic status (SES) as a moderator. Methods: Participants completed fMRI while accepting or rejecting 50/50 gambles with varying loss and gain monetary values in a loss aversion task. SES was defined by self-reported income, education, and food security. Neural loss aversion was modeled with a contrast of neural reactivity to loss values over gain values. Mixed-effects models examined group differences and group by SES interaction effects on neural loss aversion and the association between neural and behavioral loss aversion (lambda). Results: A whole-brain analysis identified three clusters in the anterior cingulate, VMPFC, and precuneus where cocaine users had significantly less neural loss aversion than control participants. While there were no group differences in the association between neural and behavioral loss aversion, there was a significant cocaine by SES interaction identified in four clusters in the bilateral postcentral gyrus, right temporal cortex, and basal ganglia. For the interaction, low SES cocaine users had a strong positive association between neural and behavioral loss aversion, while the other groups had either non-significant or negative associations. Conclusion: The results suggest that 1) cocaine users may engage different circuitry to process loss aversion and 2) stronger neural loss aversion throughout sensorimotor regions is uniquely associated with more behavioral loss aversion for low SES cocaine users.

Financial Support: R21-DA036450 F32-DA038519

First Name: Andréa

Last Name: Hobkirk

Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: Penn State College of Medicine

ID: 37
Women's and men's experiences in group therapy for substance use disorders: A mixed-methods analysis

Shelly Greenfield, McLean Hospital, Harvard Medical School

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Treatment

Abstract: Aim: There are gender differences in antecedents, course, and consequences of substance use disorders (SUDs). Gender-responsive SUD treatment is effective in addressing the unique concerns of women and may also be salient for men's recovery. We used a mixed methods approach to compare women's experiences in single- versus mixed-gender groups as well as to examine women's and men's experiences in mixed-gender group treatment for SUDs. Methods: In a Stage II clinical trial, women (N=100) were randomized to one of two group therapies for SUDs – the Women's Recovery Group (WRG) or mixed-gender Group Drug Counseling (GDC); men (N=58) were assigned to GDC. At end of treatment, participants completed questionnaires and exit interviews regarding their experiences. Tapes of exit interviews were transcribed and coded for themes using NVIVO. Results: Participants rated both groups highly (M=3.7, SD=0.6; Likert scale 0-4; 4=Liked a lot) with no significant differences in ratings between groups. All aspects of the groups were rated equally helpful, except for the gender composition. Participants in GDC rated the gender composition as less helpful than those in WRG (t=1.98, df=129, p
Financial Support: National Institute on Drug Abuse R01 DA015434 and K24 DA019855; the Women's Mental Health Initiative (McLean Hospital).

First Name: Shelly

Last Name: Greenfield

Degrees: MA MD Ph.D etc:: M.D., MPH

Company Affiliation: McLean Hospital, Harvard Medical School

Contact Title: Associate Professor

ID: 38
Mobilizing community support for people who inject drugs: A network intervention

Michael Kidorf, Johns Hopkins Bayview Medical Center

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: Aims. People who inject drugs (PWIDs) are often embedded within social networks that reinforce continued drug use and risk behaviors. It is most important to recognize that these individuals have drug-free family or friends in their personal social networks, assets that are greatly underutilized in recovery efforts. The present study evaluates the preliminary feasibility and efficacy of a novel intervention that activates a drug-free network member and enlists their participation (with the PWID) in a community support group. Methods. PWIDs are recruited from and participating in a community syringe exchange. They attend a 6-week community support group with a drug-free family or friend (verified via urinalysis testing). This group provides substance abuse education, and skills for risk reduction (including overdose prevention) and treatment-seeking. The PWID and support person are also scheduled to participate in weekly community activities (e.g., self-help groups, church) to further expand drug-free social support and facilitate network change. Results. Data collection is ongoing. To date, 18 PWIDs (and their network supports) have signed consent and attended at least one group. Support persons are most often friends (44%) or parents (28%). PWIDs and their supports have attended 64% of scheduled sessions, and have participated in 66% of scheduled community activities. Group leaders demonstrate good fidelity to the group protocol (43 ratings: overall fidelity = 0.97). Interim repeated measures analyses show reductions in heroin use (27 vs. 17 days/month; $p < .05$) and any IV drug use (27 days vs. 20 days/month; p
Financial Support: National Institute of Drug Abuse R34 DA040507 (PI: Kidorf)

First Name: Michael

Last Name: Kidorf

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Johns Hopkins Bayview Medical Center

ID: 39
Negative non-deployment emotions associated with substance use among never-deployed reserve soldiers

Rachel Hoopsick, State University of New York at Buffalo

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Epidemiology

Abstract: AIM: Deployment is a central component of the reserve soldier identity and feelings of guilt as well as decreased value, camaraderie, and connectedness within his or her unit are prevalent among never-deployed US Army Reserve/National Guard (USAR/NG) soldiers. We aimed to examine the cross-sectional associations between a measure of emotions related to never having been deployed and various substance use outcomes in a sample of never-deployed male USAR/NG soldiers. We hypothesized that more negative non-deployment emotions would be associated with greater substance use. METHODS: Data are from Operation: SAFETY (Soldiers and Families Excelling Through the Years), an ongoing study of USAR/NG soldiers and their partners. Separate regression models were used to examine the relationship between non-deployment emotions and each of the following substance use outcomes among a subset of never-deployed male soldiers (N = 121): alcohol problems, frequent heavy drinking (FHD), current nonmedical use of prescription drugs (NMUPD), and current illicit drug use. Adjusted models controlled for years of military service, number of military friends in the soldier's social network, and marital satisfaction. RESULTS: More negative non-deployment emotions were associated with a greater likelihood of alcohol problems, FHD, and NMUPD (ps
Financial Support: Supported by R01-DA034072 to Gregory G. Homish

First Name: Rachel

Last Name: Hoopsick

Degrees: MA MD Ph.D etc:: MS, MPH

Company Affiliation: State University of New York at Buffalo

ID: 40
Public Health Assessment via Structural Evaluation (PHASE): A structure-based approach for assessing the abuse potential of designer drugs

Christopher Ellis, U.S. Food and Drug Administration

Abstract Category: Program Descriptions

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Policy

Abstract: The recent surge in opioid overdose deaths is attributed to the increased prevalence of synthetic opioids, such as fentanyl and its analogs, on the illicit drug market. Newly emerging fentanyl analogs generally have a similar biological profile to fentanyl; however, they lack pharmacological and toxicological data needed for scheduling purposes and their chemical modifications may circumvent scheduling laws. Therefore, we developed the Public Health Assessment via Structural Evaluation (PHASE) methodology to provide a structure-based evaluation of a newly identified opioid's risk to public safety. PHASE utilizes molecular structure to predict biological function. First, a similarity metric quantifies the structural similarity of a new drug relative to all currently scheduled drugs. Next, software predictions provide the primary and secondary biological targets of the new drug, and finally, molecular docking estimates the binding affinity at the identified biological targets. The multi-component computational approach coupled with expert review provides a rapid, systematic evaluation of a new drug in the absence of in vitro and/or in vivo data. The information provided by PHASE has the potential to inform law enforcement agencies and hospital personal with vital information regarding newly emerging opioids.

Financial Support: FDA/CDER ORISE fellowship

First Name: Christopher

Last Name: Ellis

Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: U.S. Food and Drug Administration

ID: 41
Biological correlates of self-reported new and continued abstinence in cannabis cessation treatment clinical trials

Nathaniel Baker, Medical University of South Carolina

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Other

Abstract: AIM To assess the agreement between self-reported 7+ day abstinence with urine cannabinoid levels and changes creatinine-normalized urine cannabinoid levels, in recently and continually cannabis abstinent individuals, compared to continued users, and to assess the differences in agreement across studies with and without an abstinence contingency management (CM) component. METHODS Bootstrapped data files were assessed for agreement between self-reported 7+ day abstinence and urine cannabinoid test results using generalized linear mixed effects models for clustered binary outcomes. Data from three recently completed outpatient cannabis cessation clinical trials in which participants reported cannabis use and provided weekly urine samples for cannabis/creatinine level measurements were included. One study implemented CM for cannabis abstinence. 473 participants with 3787 valid weekly urine specimens were included. Weekly urine samples were analyzed for concurrent 11-nor-9-carboxy-Δ9-tetrahydrocannabinol (THCCOOH) and creatinine (CN). Biological cutoffs of 50, 100, and 200 ng/ml, as well as changes in recent CN normalized THCCOOH (25% and 50% decrease), were assessed for agreement with self-reported abstinence and continued use during the treatment portion of the trials. RESULTS Agreement between measured THCCOOH and self-reported abstinence increased with greater cutoff levels (50 ng/ml=47% agreement, 100 ng/ml=59%, 200 ng/ml=77%), while agreement with self-reported non-abstinence decreased (91%/86%/61%). Combining concurrent THCCOOH cutoffs (50/100/200 ng/ml) with recent changes in CN-THCCOOH (25% week to week decrease) may provide increased agreement with self-reported abstinence (74%/77%/83%), but decreased agreement with non-abstinence (64%/61%/47%) than either measure alone. Participants in the CM for abstinence study, compared to the non-CM studies, had lower biological agreement with self-reported new abstinence (34% vs. 63%) and return to use (58% vs. 82%). CONCLUSION Using a combination of biological measurements and self-reported abstinence, confirmation of study related abstinence may be verifiable earlier and with greater accuracy than relying on a single measurement. Contingent reinforcement of abstinence may lead to decreases in agreement between self-reported use and biological measures.

Financial Support: Support was provided by UG3DA043231 (McRae-Clark, Gray), R21DA34089 (McRae-Clark), R01DA026782 (McRae-Clark), and UG1DA013727-CTN0053 (Gray).

First Name: Nathaniel

Last Name: Baker

Degrees: MA MD Ph.D etc:: M.S.

Company Affiliation: Medical University of South Carolina

ID: 42
Perceived HIV risk mediates the relationship between HIV risk behavior and willingness to use pre-exposure prophylaxis (PrEP) among drug users

Roman Shrestha, University of Connecticut

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Prevention

Abstract: AIM: It is well established that HIV risk behavior is associated with willingness to use pre-exposure prophylaxis (PrEP). No studies to date have, however, examined the explanatory pathways through which individuals' engagement in risk behavior influences their willingness to use PrEP, particularly among people who use drugs (PWUD). We therefore, incorporated a mediation model to test perceived HIV risk as a mediator of this relationship, given previous evidence of risk perception being associated with both HIV risk behavior and willingness to use PrEP. METHODS: HIV-uninfected, methadone-maintained people who reported HIV-risk behaviors were enrolled (n=400). Participants completed an audio-computer assisted self-interview (ACASI) assessing socio-demographic characteristics, HIV risk behavior, risk perception, and willingness to use PrEP. An ordinary least squares regression-based path analytic framework and bootstrapping methods were used to test the mediation effect of perceived HIV risk. RESULTS: Participants' engagement in risk behavior was associated with increased perceived risk of HIV infection (β=0.044, p < 0 .001; path a). High risk perception was, in turn, positively associated with willingness to use PrEP (β=0.545, p < 0 .001; path b). The relationship between HIV risk behavior and willingness to use PrEP also emerged as significant (β=0.194, p = 0.033; path c). This relationship was, however, non-significant after controlling for perceived HIV risk (β=-0.007, p = 0.560; path c'), thus supporting the mediation effect. Post hoc analyses also confirmed this finding, such that individuals' engagement in HIV risk behavior influenced their perception of HIV risk, which in turn predicted their willingness use PrEP (Sobel z=3.953, p < 0 .001). CONCLUSION: Our findings support the need for future interventions to enhance HIV risk perception and awareness about PrEP for primary HIV prevention among PWUD. As a result of having this information, clinicians and researchers will be better equipped for targeting and dissemination efforts to improve PrEP uptake by this underserved population.

Financial Support: This work was supported by grant from the National Institute on Drug Abuse for career development (K02 DA033139) to Michael Copenhaver

First Name: Roman

Last Name: Shrestha

Degrees: MA MD Ph.D etc:: MPH, Ph.D

Company Affiliation: University of Connecticut

ID: 43
Varenicline for smoking cessation in patients with cocaine-use disorder: A proof-of-concept pilot trial

Anna Reynolds, University of Kentucky

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Treatment

Abstract: Aim: Tobacco use is the leading preventable cause of death. Cigarette smokers with cocaine-use disorder (CUD) are at a greater risk for sudden death. Smoking abstinence is associated with decreased cocaine use, but patients with substance-use disorder are less responsive to pharmacotherapy. An effective pharmacotherapy that promotes smoking cessation in individuals with CUD has yet to be identified. In this hybrid human laboratory-screening trial, we are determining the initial efficacy of varenicline in patients (n=7 completers) with CUD with high intrinsic quit interest (i.e., desire to stop smoking within 2 months). Methods: This placebo-controlled, crossover trial has predictive validity for clinical effricacy and is composed of two 3-week phases (baseline, dose run-up and abstinence). Patients are assigned in counterbalanced order to begin treatment with varenicline (titrated to 2 mg/day) or placebo and then crossed over to the other condition after completing the first phase. Medication compliance is assessed via Wisepill®. Cigarette abstinence (i.e., self-report and carbon monoxide levels < 5 ppm) is attempted during week 3 of each phase. Secondary outcomes include self-reported cocaine and alcohol use in the natural ecology. We predict that varenicline will promote cigarette abstinence and reduce cocaine use. Results: Clinic attendance and medication compliance are near maximal (i.e., ~90%). Cigarette abstinence was not achieved by any patient in either dose condition. Significant decreases in the number of reported cigarettes smoked during abstinence (mean reduction of 5/day) relative to baseline were observed regardless of maintenance medication. Cocaine use was generally similar to baseline under varenicline and placebo. Conclusion: The trial requirements are feasible for evaluating smoking cessation treatments in CUD patients. Despite the small sample size, these data are consistent with other studies showing patients with substance-use disorder are more resistant to pharmacotherapy. A “multi-pronged” approach might, therefore, be necessary to achieve smoking abstinence in this particular population.

Financial Support: Supported by NIDA T32-DA035200 and the Center for Drug and Alcohol Research and Department of Behavioral Science pilot funds at the University of Kentucky.

First Name: Anna

Last Name: Reynolds

Company Affiliation: University of Kentucky

ID: 44
Feasibility and validity of collecting intensive longitudinal alcohol use data with mechanical turk

Justin Strickland, University of Kentucky

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Alcohol

Topic: Technology Issues

Abstract: Aim: One challenge to conducting longitudinal research is cost, time, and geographic constraints. An emerging sampling method positioned to address these concerns is crowdsourcing. Crowdsourcing, such as on Amazon.com's Mechanical Turk (mTurk), allows for the rapid, effective, and efficient sampling of diverse participants. This study evaluated the feasibility and validity of collecting intensive longitudinal alcohol use data with mTurk. We hypothesized that data collection would be feasible (e.g., yield acceptable response rates) and valid (e.g., replicate well-described alcohol use patterns and associations). Methods: Adult participants (N = 303) from across the United States completed an 18-week alcohol use diary study on mTurk. After completing a baseline assessment, participants recorded logs of past week alcohol use. Acceptability measures were collected at the end of the 18-week period. Feasibility was evaluated using descriptive statistics. Validity was evaluated using generalized linear mixed models describing associations of between- (e.g., differences in alcohol use severity) and within- (e.g., day of week) subject variables with daily alcohol use patterns. Results: High response rates were observed across the 18-week period, ranging from 86% in Week 1 to 67% in Week 18. Acceptability measures showed average ratings of 86 to 93 out of 100 for overall impression, ease of completion, and convenience. Additionally, 93% of participants reported they would participate again and 93% reported they were satisfied with the study procedures. Multilevel models supported validity by replicating expected effects from the alcohol literature, such as more frequent and heavier drinking by individuals with an alcohol use disorder and on weekends. Conclusion: These data support the feasibility and validity of using mTurk for intensive longitudinal data collection in addition science. Future studies may leverage this platform to generate large, geographically diverse samples for prospective research designs.

Financial Support: National Science Foundation (Grant 1247392), University of Kentucky Center on Drug and Alcohol Research Pilot Funds, and Professional Development Funds from the University of Kentucky

First Name: Justin

Last Name: Strickland

Degrees: MA MD Ph.D etc:: MS

Company Affiliation: University of Kentucky

ID: 45
Twitter-based intervention for young adult African American blunt smokers

LaTrice Montgomery, University of Cincinnati, College of Medicine

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Abstract Category: Program Descriptions

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Other

Abstract: AIM/METHODS: Blunt use is a significant public health problem that exposes users to both marijuana and tobacco. African Americans are more likely than other racial/ethnic groups to consume marijuana through blunts. The purpose of this study is to develop and pilot test a Twitter-based intervention for African American young adults who report heavy blunt use (i.e., 21-30 days in the past month). The specific aims are as follows: (1) Characterize the cultural norms, patterns of blunt use, treatment needs, attitudes and preferences toward social-media based interventions and quit experiences among African American young adult blunt smokers, (2) Develop and pilot test (N = 20) a Twitter-based intervention to encourage engagement in discussions that promote blunt use reduction and (3) Conduct a small randomized clinical trial (N = 40) to test the feasibility, acceptability, and initial efficacy of the intervention. This presentation will highlight lessons learned from the individual interviews/focus groups in Aim 1 and describe the development of the Twitter-based intervention. CONCLUSION: If found feasible and acceptable, the intervention may offer a cost-effective, accessible and innovative way to promote blunt use reduction, thereby reducing the morbidity and mortatlity rates associated with marijuana and tobacco co-use through blunts among African American young adults.

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First Name: LaTrice

Last Name: Montgomery

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: University of Cincinnati, College of Medicine

ID: 46
Prescription opioid sources for misuse in older adults

Ty Schepis, Texas State University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: Introduction: Despite increasing rates of prescription opioid misuse in adults 50 years of age and older, little research has investigated how misused prescription opioids are obtained in this population. This work aimed to examine sources of misused opioid medication in adults 50 years of age and older, with comparisons to younger groups. Methods: Using data from aggregated 2009-2014 National Survey on Drug Use and Health surveys, prevalence rates of prescription opioid misuse, prescription opioid sources, presence of any prescription opioid use disorder (POUD) symptoms and the association of sources to POUD symptoms and other concurrent substance use were estimated. Design-based logistic regression analyses investigated age-based differences in these factors. Results: Use of physician sources was highest in adults 65 years and older (47.7%), followed by those 50-64 years old (39.2%). Conversely, use of theft (5.3%), purchases (8.5%) or friends and family (for free; 23.2%) to obtain prescription opioids for misuse were least common in adults 65 years and older; use rates of these non-physician sources in those 50-64 years old were often closer in prevalence to younger adult groups. Across those 50 years and older, purchases and use of physician or multiple sources were associated with significantly elevated POUD symptom prevalence, with between 52 and 68% of those using those sources endorsing at least one POUD symptom (all ps < 0.01). Discussion: Older adults, particularly those 65 years and older, use a different pattern of sources of misused opioid medication than adolescents or younger adults and have elevated POUD symptoms in those using physician sources. Clinicians are a key avenue for older adults to obtain prescription opioids for misuse, highlighting the potential role of medical providers in screening for and limiting such misuse.

Financial Support: Supported by NIH grant R01 DA042146 to TSS.

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Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Texas State University

ID: 47
Decreased cigarette demand among treatment-seeking smokers with depressive symptoms

Sara Weidberg, University of Oviedo

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Behavior

Abstract: Aims: despite evidence supporting the use of the Cigarette Purchase Task (CPT) as a valid tool for assessing smoking reinforcement, research assessing how environmental changes affect CPT performance is scarce. This study addressed for the first time whether reductions in smoking impact on in-treatment cigarette demand among treatment seeking smokers with depressive symptoms. It also sought to assess the differential effect of treatment condition [Cognitive Behavioral Treatment (CBT) + Behavioral Activation (BA) versus CBT + BA + Contingency Management (CM)] in cigarette demand. Our hypothesis was that in-treatment decreases in smoking consumptions would be associated with cigarette demand reductions and that participants receiving CBT + BA + CM would exhibit higher reductions in cigarette demand compared to participants in the CBT + BA condition. Methods: 92 smokers with depressive symptoms received eight weeks of either CBT + BA or CBT + BA + CM. Participants completed the CPT 8 times; the first during the intake visit and the remaining 7 once a week in midweek sessions. Cotinine samples were collected in each session. Likelihood-based mixed effects regression models assessed the association between reductions in smoking consumption and cigarette demand over time. Results: cotinine levels were positively related to cigarette demand (all p values < 0.001), although this association became less prominent across sessions. Cotinine decreases were associated with demand reductions (all p values < 0.001), but this association did not reach significance for the elasticity index. Participants receiving CBT + BA + CM showed higher demand reductions than participants receiving CBT + BA, although this comparison was only significant for the intensity index ($p = 0.004$). Conclusions: reductions in nicotine intake arranged over the course of an intervention impact in-treatment cigarette demand.

Financial Support: Supported by: Spanish Ministry of Economy and Competitiveness (MINECO16-PSI2015-64371-P)/ Council for Economy and Work (GRUPIN14-047).

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ID: 48
Gender differences in associations between childhood adversity and mental health comorbidity among adults with opioid use disorders: Results from the 2012-2013 National Epidemiologic Survey on Alcohol and Related Conditions (NESARC-III)

Elizabeth Evans, University of Massachusetts

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Sex Differences

Abstract: AIM To examine gender differences in associations between mental health comorbidity and childhood adversity among adults with DSM-5 lifetime opioid use disorders (OUD). METHOD We analyzed nationally-representative data from 388 women and 390 men with OUD (including heroin and prescription opioid misuse) as provided by the 2012-13 NESARC-III. We used weighted multinomial logistic regression to examine factors associated with mental health comorbidity, tested a gender-by-childhood adversity interaction term, and calculated predicted probabilities, controlling for adulthood traumas and sociodemographics, and conducted pair-wise comparisons. RESULTS Among adults with OUD, women are more likely than men to have comorbid mood or anxiety disorders (odds ratio [95% CI] 1.72 [1.20, 2.48]) and post-traumatic stress disorder (2.61 [1.74, 3.91]), and women are less likely to have conduct disorders. More women than men have prescription OUD (3.72 [2.24, 6.17]), and fewer have heroin use disorder (0.39 [0.27, 0.57]). Among both women and men with OUD, prevalence of any childhood adversity is high (>80%), more than 40% are exposed to >3 types of childhood adversity, and women more than men are exposed to childhood sexual abuse (4.22 [2.72, 6.56]) and emotional neglect (1.84 [1.20, 2.81]). Comorbid mood or anxiety disorders among adults with OUD are associated with female gender and childhood adversity, controlling for adulthood traumas and other factors. Moreover, with more childhood adversity, the gender gap in risk for comorbid mood or anxiety disorders widens, i.e., among adults with OUD, exposure to childhood adversity elevates risk for comorbid mood or anxiety disorders more among women than men. CONCLUSION Among adults with OUD, childhood adversity alters the gender gap in risk for comorbid mood or anxiety disorders. Using gender-tailored methods to address the harmful effects of childhood adversity on the mental health of individuals with OUD may help to prevent and ameliorate the nation's current opioid epidemic.

Financial Support: None.

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ID: 49
Pediatrician-initiated screening and referral to treatment (prevention) for 10- to 13-year-olds at high risk for substance use initiation before high school

Ty Ridenour, RTI International

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Prevention

Abstract: AIM: Recent attempts to develop Screening, Brief Intervention, and Referral for Treatment targeting substance use (SU) disorder have generated mixed efficacy at best. One barrier to this intervention is that patients with "positive" screens fail to enroll in treatment (top enrollment rate=15%). It was hypothesized that screening and referring families of high-risk youth into selective/indicated prevention would yield a greater enrollment rate. METHODS: Data are from the half-way point of an ongoing efficacy study of Screening and Referral to Treatment (prevention) (SRT) that begins during pediatrician well-child check-ups. 10- to 13-year-olds were screened using the Youth Risk Index and high-risk youth are referred to the Family Check-Up (FCU) prevention program. Participating pediatric clinics serve low-resource, mostly African-American populations in the Pittsburgh, PA region. RESULTS: 335 patients were screened with 268 scoring "at risk." Of those families randomized into the treatment arm, 74.1% enrolled in FCU. Of the enrollees, over 90% completed the FCU and nearly 40% of them engaged in additional intervention. Acceptability ratings support the program; e.g., 96.5% of parents reported being happy with or did not mind the screening and 98.2% of parents stated they would or probably would seek help if their child was "at risk" and the pediatrician knew someone who could help. Regarding efficacy, preliminary crude intent-to-treat, ANCOVA results were consistent with hypothesized FCU outcomes. Receiving the FCU was associated with statistical reductions in youth tobacco use and rule breaking and trends indicating reduced parental permissiveness and increased parental monitoring. CONCLUSION: Much greater engagement into prevention of at-risk families occurs with pediatrician-initiated SRT than alternative healthcare venues to date. SRT provides a platform for collaborating with pediatricians to conduct SU prevention programs. Specific roles in the SRT protocol could be filled by professionals within the American Medical Association's newly approved addiction medicine specialist.

Financial Support: NIDA Grant #R01 DA036628

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Company Affiliation: RTI International

ID: 50
Synthetic cannabinoid AM2201 induces epileptic seizures by enhancing glutamatergic transmission in the hippocampus

Masahiko Funada, NIMH, NCNP

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Marijuana/Cannabinoids

Topic: Mechanisms of Action

Abstract: AIM: Severe toxicity including seizures following intentional ingestion of synthetic cannabinoids has been reported. Here we investigated the effects of acute administration of synthetic cannabinoids on the induction of epileptic seizures in mice. METHODS: Synthetic cannabinoids on the induction of epileptic seizures by monitoring electroencephalogram (EEG) activity in freely moving mice and examined the involvement of cannabinoid CB1 receptors and glutamatergic transmission. EEG activity was used to monitor the effects of acute administration of synthetic cannabinoids (AM2201 or AB-CHMINACA) on the induction of epileptic seizures. To elucidate the brain mechanism of the induction of epileptic seizure, changes in extracellular glutamate concentration in the hippocampus were measured using an enzyme-based biosensor and c-Fos immunohistochemistry. RESULTS: Synthetic cannabinoids induced abnormal, high-amplitude (>2-fold baseline amplitude), sharp-wave activity accompanied by typical epileptiform behavior. The spike-wave discharges and behavioral changes were suppressed by pretreatment with the selective CB1 receptor antagonist AM251, but not with the selective CB2 receptor antagonist AM630. The metabotropic glutamate receptor antagonist SIB1757 eliminated AM2201-induced spike-wave discharges and episodes of epileptiform behavior. Furthermore, AM2201 markedly increased the extracellular glutamate concentration in the hippocampus during periods of abnormal spike-wave discharges and behavioral changes. CONCLUSION: Our findings indicate that the induction of epileptic seizures by synthetic cannabinoids is mediated by CB1 receptors but not by CB2 receptors, and further suggest that rapid elevation of glutamatergic transmission may play an important role in the induction of seizures following intentional ingestion of synthetic cannabinoids.

Financial Support: This research was supported by a Research Grant for Regulatory Science of Pharmaceuticals and Medical Devices, Health and Labour Sciences Research Grants from the Ministry of Health, Labour and Welfare of Japan (to M.F.).

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ID: 51
Barriers to integrating the continuum of care for opioid and alcohol use disorders in primary care: A qualitative longitudinal study

Erik Storholm, RAND Corporation

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Treatment

Abstract: AIM Untreated substance use disorders remain a pervasive public health problem in the United States, especially among medically-underserved and low-income populations, with opioid and alcohol use disorders (OAUD) being of particular concern. Primary care is an underutilized resource for delivering treatment for OAUD, but little is known about the organizational capacity of community-based primary care clinics to integrate treatment for OAUD. The objective of this study was to use an organizational capacity framework to examine perceived barriers to implementing the continuum of care for OAUD in a community-based primary care organization over three time points: pre-implementation (preparation), early implementation (practice), and full implementation. METHODS Clinic administrators and medical and mental health providers from two clinics participated in interviews and focus groups. Barriers were organized by type and size, and are presented over the three time points. RESULTS Although some barriers persisted, most barriers decreased over time, and respondents reported feeling more efficacious in their ability to successfully deliver OAUD treatment. CONCLUSION Findings contribute to the needed literature on building capacity to implement OAUD treatment in primary care and suggest that while barriers may be sizable and inevitable, successful implementation is still possible.

Financial Support: This study was supported by a grant from the National Institute of Drug Abuse (R01DA034266) awarded to Dr. Katherine E. Watkins.

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Company Affiliation: RAND Corporation

ID: 52
Willingness to provide a hair sample for drug testing among electronic dance music party attendees

Joseph Palamar, New York University School of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Club/Designer Drugs

Topic: Epidemiology

Abstract: Aim: Drug epidemiology surveys have limitations, as respondents sometimes provide misinformation about use. Many drug users also unknowingly ingest adulterant drugs, which leads to underreporting. Biological testing can complement survey research, and hair-testing is an ideal method as hair samples can be easily collected and stored, and many drugs are detectable for months post-use. Methods: We surveyed 928 individuals (aged 18-40) entering electronic dance music parties in NYC in 2017. Willingness to donate a hair sample to be tested for new drugs such as "bath salts" was assessed. Extra compensation was not provided for donating a hair sample and respondents were unable to receive their results. Response rates and reasons for refusal (queried via a checklist) were examined. Results: A third (n=311; 33.5%) provided a hair sample. Lack of interest (20.9%), lack of time (19.8%), disinterest in having a lock of hair cut (17.8%), and disinterest if having their hair cut in public (13.8%) were the main reported reasons for refusal. Others feared identification (7.1%) or embarrassment (7.1%). 2.7% refused because they thought we would detect drugs; 7.9% refused because they felt we would not detect any drugs. Others refused because they felt their hair was too short (6.6%) or because they could not receive their results (4.7%). Asian respondents were at lower odds of providing a hair sample (aOR=0.52, p=.011), and those reporting past-year use of LSD (aOR=1.62, p=.012), opioids (nonmedical; aOR=1.92, p=.003), and/or methamphetamine (aOR=3.42, p=.009) were more likely to provide a hair sample than non-users of these drugs. Conclusions: Many survey respondents—particularly drug users—were willing to provide a hair sample for testing. Such willingness is important as hair testing can help validate survey responses, and it can be used to detect unknown use of drugs such as fentanyl and its analogues.

Financial Support: This analysis was funded the National Institute on Drug Abuse (K01DA038800, P30DA011041)

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ID: 55
HCV status and psychiatric burden of opioid dependent-adults and young offenders in Austrian prisons

Laura Brandt, University of Vienna

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: AIM: Prisoners constitute a considerable gap in the hepatitis C virus (HCV) tested population. We systematically examined the prevalence of HCV in imprisoned opioid maintenance treatment-patients (OMT-P) and in a second sample of imprisoned adolescents and young adults (AYA), in addition to participants' knowledge of their HCV status and provision of HCV testing and treatment in prisons, participants' psychiatric comorbidity, and factors associated with HCV status. METHODS: Cross-sectional interviewer-administered surveys and blood sampling of 133 OMT-P (61% of total OMT-P population at investigated prisons; 78% male, mean age 35.7 years) and 71 AYA (46% of AYA population; 100% male, 19.8 years). HCV antibodies were detected using the enzyme-linked immunosorbent essay (ELISA) technique and HCV-RNA was confirmed through PCR analysis. Addiction severity, psychiatric comorbidity and criminal history were assessed applying standardized questionnaires. RESULTS: Eleven percent of OMT-P (50.7% of AYA) did not know their HCV status, and 14.3% of OMT-P (36.6% of AYA) had not been tested for HCV in prison. While only one AYA tested positive for HCV, antibodies were detected in 74.4% of OMT-Ps' blood samples and in 45.0% HCV infection was confirmed. Yet, none of the participants received HCV treatment at the time of the investigation. AYA had a similarly high psychiatric burden (mean number of psychiatric comorbidities: 1.5, SD = 1.59) compared to OMT-P (1.5, SD = 1.51), p = .436. Of OMT-P, 78.9% reported lifetime injection drug use (IDU; 4.2% of AYA), and 5.5% had continued IDU in prison (none of AYA). Logistic regression revealed that among OMT-P only lifetime IDU significantly predicted HCV status [OR=330.33 versus no IDU, CI=25.91-4433.20]. CONCLUSION: Despite a high prevalence of HCV amongst opioid-dependent detainees, the unique opportunities for comprehensive testing and treatment of HCV are substantially underutilized in Austrian prisons. This is in stark contrast to the Basic Principles for the Treatment of Prisoners.

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ID: 56
Alcohol use disorder and motives for prescription opioid misuse

Victoria Votaw, University of New Mexico

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Epidemiology

Abstract: AIM: Alcohol use disorder (AUD) is common among those with prescription opioid (PO) misuse, and is associated with progression to opioid use disorder and increased risk of overdose when alcohol and POs are combined. However, little is known about alcohol and PO co-use. Motives, or reasons, for substance use are important factors in substance use initiation and maintenance, and can help inform treatment targets. The aims of the present study were to examine the association between: (1) AUD and types of motives for PO misuse, (2) AUD and number of motives for PO misuse. METHODS: Data were from the 2015 National Survey on Drug Use and Health; adult respondents with past-year PO misuse were included (N = 2631). Logistic regression models were utilized to examine the association between past-year AUD and three types of motives for participants' last PO misuse: pain relief, coping (e.g., for emotions), and enhancement (e.g., to get high). Negative binomial regression was used to examine the association between AUD and number of motives for PO misuse. Covariates included sociodemographic factors, past-year psychiatric distress, other illicit drug use, and self-reported overall health. RESULTS: AUD was associated with greater odds of reporting coping (OR=1.56, 95% CI: 1.30, 1.88, $p < 0$ .001) and enhancement motives (OR=1.94, 95% CI: 1.57, 2.37, $p < 0$ .001) for PO misuse, but lower odds of reporting pain relief motives (OR=0.62, 95% CI: 0.51, 0.75, $p < 0$ .001). There was also an association between AUD and a greater number of motives for PO misuse (p=0.041). CONCLUSION: Those with AUD reported more motives for PO misuse, including negative affect relief (i.e., coping motives) and enhancement motives. Accordingly, treatments that target negative affect may be particularly important for reducing PO misuse among those with AUD. Psychoeducation on the harms of alcohol and PO co-ingestion, including overdose risk, might also be indicated in this population.

Financial Support: R21 AA024926

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Last Name: Votaw

Company Affiliation: University of New Mexico

ID: 57
Development of a brief screening tool to assess prescription opioid dependence

Suzanne Nielsen, University of New South Wales

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Dependence

Abstract: Aim: Large increases in opioid prescribing have been observed in many countries, and are associated with increased in harms including dependence and mortality. One in five people using long-term opioids meet criteria for opioid dependence, with patients prescribed and dispensed opioids in primary care settings. An ongoing challenge has been identified in how best to identify problematic use including prescribed opioid (PO) dependence in primary care. The aim of this study is to develop a screening tool for PO dependence, developed specifically for use in primary care settings (general practitioner and community pharmacy screening). Methods: We used data from The Prescribed Opioids IN Treatment (POINT) Cohort to develop an initial set of candidate items through univariate analyses testing associations with dependence per the ICD-11 criteria. Items that were significant at the univariate level were then examined using exploratory and confirmatory factor analyses. Items were removed for poor fit, redundancy, rarity or wording that was either obviously related to dependence (which consultation with primary care providers revealed would be a barrier to use in a primary care setting). ROC curves were used to determine the best cut-off with respect to sensitivity and specificity. Results: A four-item scale was determined with a cut-off of 2 having 77% sensitivity and 77% specificity at identifying those that met opioid dependence as assessed with a CIDI diagnostic interview against ICD-10 criteria, and 65% sensitivity and 80% specificity per criteria for DSM-5 substance use disorder. The items have face-validity and are acceptable to primary healthcare clinicians and patients for administration in primary care settings. Conclusion: This brief primary care screening tool has been validated using a gold standard CIDI interview with acceptable sensitivity and specificity. Ongoing work will validate this tool for patient self-complete. This tool has potential applications for brief screening to identify dependence.

Financial Support: Australian National Health and Medical Research Council Research Fellowship #1132433

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ID: 58
Establishment of screening method for selective NMDA receptor antagonist using HEK-293 cell line expressing NR1/NR2B

Tomiyama Kenichi, National Center of Neurology and Psychiatry

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Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Sedative-Hypnotics

Topic: Other

Abstract: Globally widespread new psychoactive substances (NPS) are a major concern, and they cause health and social problems. NPS abuse is a major issue because it increases the risks of traffic accidents or harming oneself or others. In Japan, diphenidine and methoxetamine (MXE), analogs of the dissociative substance ketamine, have been detected in products such as herbal mixtures. Diphenidine and MXE act as the N-methyl-D-aspartate receptor (NMDAR) antagonist and mimic the hallucinogenic effects of ketamine or phencyclidine (PCP). However, there is currently no efficient method for hallucinogen screening of substances because it is difficult to evaluate the hallucinogenic effects based on animal behavior. In this study, we present a high-throughput screening method of the NMDAR antagonist using a FLIPR/Ca2+ assay that measures NMDAR-mediated changes in an intracellular calcium, and an automated patch-clamp system in a HEK-293 cell line stably expressing NMDA receptor NR2B with NR1 under the control of a tetracycline-responsive promoter. First, to evaluate the functional Ca2+ channel activity of the expressed NMDAR, the intracellular fluorescent intensity corresponding to the Ca2+ influx was measured. Glutamate and glycine evoke the channel activity of NMDAR in a dose-dependent manner. Diphenidine and MXE suppressed the NMDAR-mediated Ca2+ influx evoked by glutamate in a dose-dependent manner. Second, the NMDAR-mediated current is elevated in a glutamate and glycine dose-dependent manner. Glutamate and glycine activated currents were also suppressed by pretreatment with PCP, ketamine, diphenidine, and MXE. Results of FLIPR/Ca2+ assay and automated patch-clamp system suggest that diphenidine and MXE are selective antagonists of NMDAR similar to Ketamine and PCP, and might constitute useful tools able to screen NPS that inhibits the activity of NMDAR in physiological conditions.

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ID: 59
Impact of buprenorphine taper and oral naltrexone induction schedules on successful outpatient transition to injectable naltrexone

Michael Mancino, University of Arkansas for Medical Sciences

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: AIM: Naltrexone (NTX) is a powerful medication in maintaining opioid abstinence. However, NTX is limited by the necessity to undergo detox and remain abstinent prior to NTX. This reduces successful outpatient transition to injectable NTX (INTX). We examined interval data from initial stages of a larger randomized, placebo-controlled outpatient clinical trial to determine if changes in buprenorphine (BUP) and NTX dosing during a 10 day detox and availability of a second INTX impacted transition to initial INTX. Methods: Data obtained from the first 58 participants in this clinical trial to determine utility of gabapentin (GBP) in prescription opioid-dependent individuals undergoing outpatient BUP detoxification and feasibility of transitioning to INTX. During detox (wks-1-3), participants attended clinic 5-6 days/week to receive study medications, attend weekly therapy and complete assessments. During NTX induction (wk-4), participants attended clinic 5 days. Day 1 week 4, participants provided a UDS that needed to be opioid-negative to start NTX. Opioid-negative UDS or lack of opioid relapse led to clonidine administration, followed by oral NTX. After none of the first 9 participants received the injection (Protocol-1), BUP taper was accelerated (Protocol-2). The protocol was amended after the next 37 Protocol-2 participants stopped attending after the initial INTX by adding a second INTX (Protocol 3). Twelve participants have enrolled in Protocol 3. Groups were compared with regard to percentage of participants completing detox, eligible to receive initial injection and eligible to receive INTX successfully receiving the first INTX. Results: No baseline group differences in sex, race or age. The groups did not differ in percentage completing versus not completing detox ($p=0.86$) and those eligible for injection versus not ($p=0.82$). However, the groups showed significant difference in percentage receiving injection or not ($p=0.012$), such that 0%, 20% and 83% in protocols 1, 2, and 3, successfully received INTX. Conclusion: Adjusting buprenorphine taper and NTX induction as well as making a second INTX available increased feasibility of successfully transitioning to INTX on an outpatient basis.

Financial Support: NIDA R01 (DA036544-01A1)

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ID: 60
Improvement in pain and retention in a large prospective open label randomized trial of buprenorphine versus methadone for opiate use disorder

Matisyau Shulman, Columbia University and NYSPI

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: Both methadone and buprenorphine are FDA approved for the treatment of pain as well as agonist treatment of opioid use disorder (OUD). AIMS: 1] To determine if individuals with comorbid pain randomized to methadone agonist treatment for OUD were more likely to report improved pain than those randomized to buprenorphine after four weeks of treatment. 2] To determine if improved pain in such individuals was associated with future treatment retention. METHODS: We performed a secondary analysis of a large open label randomized trial of buprenorphine versus methadone including 1241 individuals with OUD participating in nine treatment programs from 2006 to 2009. A survey item collected at baseline, 4 and 12 weeks assessed pain and was dichotomized to mild or no pain versus moderate or severe pain. ANALYSIS: Aim 1] A logistic regression model was fit to determine if treatment assignment was associated with improvement in pain. The models included the main effect of treatment (Methadone vs Buprenorphine), and were analysed with and without adjusting for covariates. Aim 2] A logistic regression model was fit to test if pain improvement at week 4 was associated with treatment retention. The models included the main effect of pain improvement and were also analysed with and without adjusting for covariates. RESULTS: Approximately 50% of individuals with comorbid pain at baseline reported improvement in their pain at week 4 with no significant difference between the methadone and buprenorphine groups. After controlling for covariates, improvement in pain at week 4 was associated with increased likelihood of retention at week 12 (p=.026). CONCLUSIONS: We did not find evidence that methadone, a full opiate agonist, is more effective than buprenorphine, a partial agonist, in treating pain in individuals with opiate use disorder. Across both groups, individuals whose pain improved were significantly more likely to remain in treatment.

Financial Support: The National Institute on Drug Abuse (NIDA) contributed to the development of study design and initial protocol. The authors report no conflicts of interest. Dr Shulman was funded by the NIDA grant T32 DA007294. Dr. Nunes was funded by the NIDA grant K24 DA022412 (PI: Nunes).

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Degrees: MA MD Ph.D etc:: MD

Company Affiliation: Columbia University and NYSPI

ID: 61
Comparison of the reinstatement of cocaine-seeking in remission induced by cues, drug or a drug/cue combination – an IVSA study in rats

David Heal, RenaSci Ltd

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Stimulants

Topic: Dependence

Abstract: Aim: Relapse is a major factor in treating substance use disorders. We determined the relative effects on reinstatement of cocaine-seeking by contingent cues, cocaine and their combination in a rat IVSA study. Methods: Mildly food-restricted male rats with jugular catheters were alowed to leverpress for cocaine (0.36mg/kg/injection [inj]) on FR5 in 2hr sessions. Each infusion was paired with contingent tone+light cues. Responding of rats was extinguished on saline (FR5 without cues). In 4 once-daily, 2hr reinstatement sessions, rats were presented (i) Cues, (ii) Cocaine (1.0mg/kg i.v.) priming infusion, or (iii) Cues+Cocaine. Presses on the drug-paired lever were measured with rats receiving saline infusions on FR5. Results are mean±sem for 8-10 rats. Results: Cocaine was a positive reinforcer in all groups of rats (range: 20.7±1.1 to 21.8±1.2inj/session; 138.3±7.1 to 155.9±12.5 active lever-presses/session [both $p < 0.001$ versus saline]). All groups extinguished on saline (range: 2.3±0.4 to 2.8±0.3inj/session; 15.7±2.2 to 19.3±1.6 active lever-presses/session). All interventions induced reinstatement in first session (active leverpresses: Cues = 61.2±15.0; Cocaine = 59.5±11.8; Cues+Cocaine = 102.5±15.0 [all $p < 0.001$ versus saline extinction]). Cues+Cocaine elicited more active lever-presses than saline extinction in Sessions 1-4 ($p < 0.001$). Compared with saline extinction, Cues produced significantly more active lever-presses in Sessions 1 and 4, and Cocaine in Session 1 ($p=0.059$ in Session 3). Reinstatement by Cues+Cocaine was not significantly different from Cues or Cocaine in Session 1, but was greater ($p < 0.05$) in Sessions 24. There were no differences between cocaine-seeking elicited by Cues or Cocaine. Conclusion: Cocaine-seeking in remission can be triggered by contingent cues or drug priming. The level of drug-seeking induced by cues was not significantly different from cocaine priming demonstrating their importance as motivators for relapse. The cocaine-seeking effects of drug priming and contingent cues were additive when they were combined.

Financial Support: None

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Degrees: MA MD Ph.D etc:: Ph.D.,DSc

Company Affiliation: RenaSci Ltd

Contact Title: Executive Director

ID: 62
An investigation of the reinforcing effects of MDMA in rats trained to self-administer heroin.

David Heal, RenaSci Ltd

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Club/Designer Drugs

Topic: Dependence

Abstract: Aim: There are relatively few published studies describing the reinforcing effects of MDMA (ecstasy) in rats. With increasing interest in the potential of MDMA and other psychedelic compounds as medical treatments, we have investigated whether MDMA served as positive reinforcer in heroin-maintained rats. Methods: Male, Sprague-Dawley rats were trained to selfadminister heroin (0.015mg/kg/injection [inj]) on a fixed ratio (FR5) schedule of reinforcement. After saline extinction on FR5, the reinforcing effects of 4 doses of MDMA were evaluated on FR5 and FR3 schedules in 2hr sessions. When MDMA served as a reinforcer (>6 inj/session), a 4hr progressive ratio (PR)/break-point analysis was performed. Results are reported as mean±SEM. Results: Heroin maintained selfadministration in rats (15.6±2.2 inj/session, n=10) at levels significantly greater ($p < 0.01$) than saline (4.9±0.3 inj/session, n=10). Although self-administration of MDMA was acceptable on FR5, it served as a more robust reinforcer on FR3. On FR3, all doses of MDMA (0.025, 0.05, 0.1 or 0.25mg/kg/inj) maintained self-administration at levels significantly greater than saline (0.025=13.8±2.3 [n=4], $p < 0.05$; 0.05=18.6±1.9 [n=5], $p < 0.01$; 0.1=16.0±3.1 [n=5], $p < 0.01$; 0.25=17.3±3.2 [n=5], $p < 0.01$). The break-points for responding (mean leverpresses/inj) for these doses of MDMA were 18.0±2.9; 22.8±3.3; 20.0±2.2 and 30.6±7.4, respectively. Conclusion: MDMA served as a positive reinforcer across a 10-fold dose range in heroin-maintained rats. Powerful reinforcers, eg heroin (61.8±17.7, 0.025mg/kg/inj, n=8) and cocaine (65.7±22.2, 0.29mg/kg/inj, n=10) (Smith et al, 2016, SfN abst p.549.10) typically support break-points greater than 50 lever-press/inj. The break-point results obtained with MDMA classifies it as having moderate reinforcing efficacy in rats.

Financial Support: None

First Name: David

Last Name: Heal

Degrees: MA MD Ph.D etc:: Ph.D.,DSc

Company Affiliation: RenaSci Ltd

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ID: 64
The associations of neighborhood availability of marijuana dispensaries and buprenorphine treatment practitioners with hospital stays related to opioid analgesics

Di Liang, University of California San Diego

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Policy

Abstract: Aim Evidence is emerging on how state-wide medical marijuana legalization and increased supply of buprenorphine treatment practitioners (BTP) may be associated with outcomes related to opioid analgesics (OA). It is unknown whether such associations remain at neighborhood level. This study aimed at examining the associations of neighborhood availability of marijuana dispensaries and BTP with OA-related hospital stays. Methods Discharge-level records of inpatient (N=264,013) and observation stays (N=12,621) were obtained from the Washington Comprehensive Hospital Abstract Reporting System from January through June in 2016. Patient OA-related outcomes were indicators for inpatient stays related to opioid use disorder (OUD), inpatient stays related to OA overdose, and observation stays related to OUD. The counts of marijuana dispensaries and BTP were aggregated at zip code level. Multilevel logistic regressions with random intercepts were used to examine the cross-sectional associations, controlling for other patient and neighborhood characteristics. Results Relative to those living in neighborhoods without any recreational marijuana dispensaries, patients living in neighborhoods with 1 (OR=1.25, P=0.002) and 2+ (OR=1.24, P=0.025) recreational marijuana dispensaries were more likely to be diagnosed with OUD in inpatient stays. In contrast, patients living in neighborhoods with 1 medical marijuana dispensary were less likely to be diagnosed with OUD in observation stays (OR=0.52, P=0.010) compared to those living in neighborhoods without any medical marijuana dispensaries. The neighborhood availability of BTP was not associated with OA-related stays. Conclusion Recreational and medical marijuana dispensaries were differentially associated with OA-related hospital stays. Further investigations are warranted to explore the causal pathways of the findings.

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Degrees: MA MD Ph.D etc:: Ph.D.

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ID: 65
A study of occupational therapy-based cognitive rehabilitation to improve cognition in veterans with cocaine use disorder: Feasibility & tolerability

Rajkumar Kalapatapu, University of California San Francisco

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Stimulants

Topic: Treatment

Abstract: Aim: Cocaine use disorder remains a significant public health problem in the United States. Cognitive impairment is an undesirable consequence of cocaine use disorders. Because existing models of cognitive rehabilitation have yielded small effects in improving cognition in substance use disorder populations, newer models of cognitive rehabilitation are needed. This is a feasibility study of a new occupational therapy-based model of cognitive rehabilitation to determine whether this model is acceptable and tolerable for veterans diagnosed with a cocaine use disorder. Methods: This is a randomized parallel-group outpatient study of treatment-seeking veterans age 18-65 diagnosed with a cocaine use disorder and who are abstinent and mild-to-moderately cognitively impaired at baseline. The active arm consists of a combination of face-to-face plus computer-based cognitive training. The control arm consists of a combination of face-to-face psychoeducation plus computer-based games. Both arms are time-matched for the face-to-face (12 hours) and computer-based (24 hours) procedures, differing only in the content delivered. Result: Of 22 eligible participants screened, 21 participants (mean age 56.2) were consented and randomized. Eleven participants have completed the active arm, and ten participants have completed the control arm. All 21 completers finished 100% of the 36-hour training. No randomized participants have dropped out, and 20 out of 21 participants are male. Conclusion: The interventions in each arm have been acceptable and tolerable. Veterans with cocaine use disorder have been able to tolerate a time-intensive intervention of face-to-face and computer-based cognitive rehabilitation. A larger study is needed to assess the efficacy of each intervention.

Financial Support: NIDA K-award: K23DA034883

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Company Affiliation: University of California San Francisco

Company Affiliation: Peter Boris Centre for Addictions Research

ID: 69
Quality of life and the state of health: Ambulatory treatment for substance use disorders in Argentina

Hendree Jones, University of North Carolina at Chapel Hill

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Treatment

Abstract: Aim: Roughly, 170.000 people/year in Argentina receive substance use disorder treatment. Little attention is paid to how the quality of life and overall health is perceived by patients and how age and the number of previous treatments are related to such aspects. Methods: N=60 patients, male and females, attending “Fundación Convivir” outpatient treatment program. Patients completed the Quality of Life Enjoyment and Satisfaction Questionnaire Short form" and "SF-36" to determine the perceived state of health and quality of life. A semi-directed interview obtained demographic information. Results: The sample was 67% men, 33% women, with 37% having dual pathology, 48% having public health coverage and 48% employment. The most problematic substances were cocaine (68%) or alcohol (47%), among others. Most patients considered (92%) treatment helped them make decisions regarding their relationship to the use of substances in favor of their quality of life. Regarding the health perception, older age was significantly correlated with lower perception of health (physical function (p
Financial Support: General Management Office of Social Policies in Addictions. Ministry of Human Development and Habitat. Government of the Autonomous City of Buenos Aires.

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Company Affiliation: University of North Carolina at Chapel Hill

Contact Title: Associate Professor

ID: 70
Smartphone-based financial incentives to promote smoking cessation among pregnant women

Allison Kurti, University of Vermont

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Treatment

Abstract: AIM: Cigarette smoking during pregnancy increases risk for catastrophic pregnancy complications, growth retardation, other adverse fetal and infant health problems, and later-in-life chronic conditions among exposed offspring. The most effective intervention for reducing smoking during pregnancy is a behavioral economic model wherein participants earn incentives (e.g., vouchers exchangeable for goods and services) contingent on objective evidence of smoking abstinence. However, incentive-based interventions are typically delivered in relatively intense protocols requiring frequent clinic visits, which limits the geographical range over which services can be delivered and potentially denies treatment to those residing in remote or otherwise difficult to reach settings. The present study examines the feasibility and preliminary efficacy of a smartphone-based financial incentives intervention whereby smoking monitoring and delivery of incentives are completed remotely using a mobile app. METHODS: Pregnant women are recruited via obstetrical clinics, WIC offices, and ads in print and online media outlets in all Vermont counties outside of those immediately adjacent to our research clinic. Eligible participants who complete the informed consent process are randomized to either an incentives condition wherein women receive financial incentives contingent on the remote submission of breath and saliva specimens indicating abstinence from recent smoking, or a control condition wherein women receive current best practices for smoking cessation (i.e., referral to the VT pregnancy-specific quit line). RESULTS: To date, two women have enrolled in the financial incentives condition. Both women are White, aged 21 and 24 years, unmarried, and have completed fewer than 12 years of education. Both women have comparable levels of nicotine dependence, with one smoking 10 cigarettes per day (CPD) in the past week and smoking within 5 minutes upon waking, and the other smoking 9 CPD and smoking within 6-30 minutes upon waking. Primary outcomes in the study will include proportion of participants achieving late-pregnancy smoking abstinence and longest duration of abstinence. CONCLUSION: If successful, the proposed smartphone-based financial incentives intervention has the potential to substantially expand the reach of this effective intervention for pregnant smokers.

Financial Support: 4P20GM103644-04 (Higgins)

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Degrees: MA MD Ph.D etc:: Ph.D

Company Affiliation: University of Vermont

ID: 71
Of substance: Stressful life events and substance use in a national sample

Carol Boyd, University of Michigan

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Epidemiology

Abstract: Aims: This study examined the associations between 16 stressful life events, substance use and DSM 5 substance use disorder in a national sample of adults. Methods: Data were collected from structured diagnostic interviews that were part of the 2012-2013 National Epidemiologic Survey on Alcohol and Related Conditions (NESARC-III). We examined substance use and DSM-5 substance use disorder (SUD). History of use was defined as prior-to-past year and current use was defined as past 12 months. Our sample included 8,628 adults who reported a history of DSM-5 SUD. The survey-weighted sample represented a population that was 58.9% male, 76.4% White, 10.5% Hispanic, 8.2% African-American, 4.9% Asian, Native American or other. Results: Among individuals with a prior-to-past-year history of SUDs, the prevalence of current asymptomatic substance use was 32.9%, the prevalence of current DSM-5 symptomatic substance use was 14.8%, and the prevalence of current SUD was 38.2%. Among individuals with any prior-to-past-year history of SUDs, design-based multinomial logistic regression analysis revealed that stressful life events were the common correlate of a DSM-5 SUD and each drug-specific use disorder (e.g., alcohol, cannabis, prescription opioids, etc.). For every additional past-year stressful event, the odds increased for current symptomatic substance use (AOR = 1.2, 95% CI = 1.1, 1.2, $p < 0.001$) and current SUD (AOR = 1.3, 95% CI = 1.2, 1.3, $p < 0.001$) relative to past-year non-use. Certain demographic groups had significantly higher odds of lifetime and current SUDs (e.g., younger adults, higher education and income, bisexuals, and never married). Conclusions: There is a value in examining stressful life events in relation to substance use and remission from SUDs, and this could be useful for enhancing interventions and clinical care.

Financial Support: This research was supported by the National Institute on Drug Abuse, National Institutes of Health (R01DA036541 and R01DA043696).

First Name: Carol

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Degrees: MA MD Ph.D etc:: PH.D, MSN, FAAN

Company Affiliation: University of Michigan

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ID: 72
Nicotine dependence in us military veterans: Results from the national health and resilience in veterans study

Stephen Baldassarri, Yale University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Epidemiology

Abstract: AIM: To test the hypothesis that Veterans with lifetime nicotine dependence (ND) have higher odds of comorbid illnesses compared with Veterans without ND. METHODS: We analyzed data from the National Health and Resilience in Veterans Study (NHRVS), a large nationally representative sample of 3,157 US Veterans aged 21 years and older US veterans. Descriptive statistics were conducted to summarize sociodemographic, military, psychiatric, physical health, and functionality/quality of life characteristics among those with and without lifetime ND. Hierarchical binary logistic regression analyses were conducted to evaluate the relationship between ND and psychiatric and physical health variables as well as functionality and quality of life variables. RESULTS: Veterans with ND were more likely to screen positive for several lifetime psychiatric disorders and were more likely to meet criteria for alcohol use disorder (OR 2.79 [2.23, 3.49]), depression (OR 1.86 [1.38, 2.50]), generalized anxiety disorder (OR 1.79 [1.33, 2.40]), and current PTSD (OR 1.68 [1.14, 2.47), as compared with Veterans without ND. Veterans with ND were more likely to report kidney disease (OR 4.18 [2.55, 6.86]), heart attack (OR 2.09 [1.51, 2.89]), rheumatoid arthritis (OR 1.90 [1.20, 3.00]), diabetes (OR 1.53 [1.20, 1.96]), and chronic bronchitis/COPD (OR 1.49 [1.13, 1.97]), among other conditions. They also had decreases in overall physical functioning and increases in somatization symptoms. CONCLUSION: A significant percentage (19.4%) of US Veterans have a lifetime history of ND, which is comorbid with multiple psychiatric and medical conditions. The strongest correlates of lifetime ND in the NHRVS survey were lifetime alcohol use disorder, current alcohol use disorder, kidney disease, and heart attack. Veterans with ND require a comprehensive and integrated approach to care that includes attention to psychiatric and medical co-morbidities in addition to drug addiction that may or may not be in remission.

Financial Support: U.S. Department of Veterans Affairs National Center for Posttraumatic Stress Disorder; National Institute on Drug Abuse (K12 DA033312); United States (U.S.) Department of Veterans Affairs Clinical Sciences R&D (CSRD) Service (IK2 CX-001259-01)

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Last Name: Baldassarri

Degrees: MA MD Ph.D etc:: MD

Company Affiliation: Yale University

ID: 73
Dimensions of negative consequences in regular marijuana users differ by sex

Cara Struble, Wayne State University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Sex Differences

Abstract: AIM: Regular marijuana smokers experience consequences across many domains of functioning. The purpose of this study was to examine whether there are unique domains of consequences related to marijuana use, and to identify demographic, psychological, and substance use characteristics related to these domains. METHODS: Data on 26 marijuana use-related consequences were collected from 247 adults with Cannabis Abuse/Dependence using a standardized Drug History and Use Questionnaire (DHUQ). Psychiatric characteristics of the sample were assessed with the Beck Depression Inventory (BDI-II) and Structured Clinical Interview for DSM-IV (SCID-IV). An exploratory principal component analysis (PCA) was conducted to analyze the factor structure of marijuana-related consequences. RESULTS: Preliminary PCA analyses revealed five unique domains of consequences: physical dependence (Factor 1), memory (Factor 2), academic/occupational (Factor 3), risky behavior (Factor 4), and impaired control (Factor 5), which accounted for 60.61% of the variance (n = 163; KMO=0.76). Factor 1 was associated with onset of regular (3x/wk) marijuana use ($r = -0.19$, $n = 160$, $p = 0.018$). Severity of depressive symptoms was significantly related to Factor 2 ($r = 0.19$, $n = 157$, $p = 0.02$) and Factor 3 ($r = 0.23$, $p = 0.004$). Biological sex was associated with a lifetime history of depressive symptoms ($\chi2(1, N = 194) = 5.48$, $p = 0.019$). Sex differences were also found on Factor 2 regression scores ($t(159)= -2.72$, $p = 0.007$). Compared to males, females were more likely to experience lifetime depressive symptoms and endorsed greater marijuana-related memory consequences. CONCLUSION: These findings support the existence of unique domains of consequences associated with regular marijuana use, consistent with findings from non-regular users. Further, demographic and substance use characteristics, including sex, are specific to certain domains. Increasing our understanding of marijuana-related consequences and how they may differ between males and females might lead to more effective interventions and better treatment outcomes.

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First Name: Cara

Last Name: Struble

Degrees: MA MD Ph.D etc:: MA

Company Affiliation: Wayne State University

ID: 74
Pain treatment with buprenorphine as a strategy to reduce the epidemic of opioid abuse and overdose

Reginald Fant, Pinney Associates, Inc.

Abstract Category: Theoretical/Commentary

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Policy

Abstract: The misuse, abuse, overdoses, and deaths associated with Schedule II opioids (e.g., hydrocodone, oxycodone, hydromorphone, morphine) have become significant public health issues in the United States, resulting in many referring to the present situation as an “epidemic”. Examining the nature of this epidemic shows that much of it is associated with misuse and abuse of Schedule II immediate-release (IR) opioids and illegal drugs, such as heroin and illicit fentanyl. In contrast to the Schedule II opioids (all full mu-receptor agonists), buprenorphine, a Schedule III (partial mu-receptor agonist) opioid analgesic, has a lower potential for abuse, and a significantly improved safety profile. Currently available products Belbuca® (buprenorphine buccal film) and Butrans® (buprenorphine transdermal system) are designed to deliver buprenorphine at sufficient doses to provide effective pain relief, but at significantly lower doses than are provided by buprenorphine products indicated for the treatment of opioid use disorder (OUD). Being a partial mu-opioid agonist, buprenorphine has a different safety profile when compared to the full mu-opioid agonists, including less abuse, misuse and addiction potential and importantly a ceiling effect on respiratory depression which may lessen the risk of overdose and death. At higher doses, buprenorphine’s physiologic effects reach a plateau, and this ceiling effect results in a lower risk of overdose related to respiratory depression. Similarly, there is also a dose ceiling associated with the euphoric effects of buprenorphine, which lowers the overall abuse potential of the drug compared to that of Schedule II opioids. This poster will discuss data that demonstrate that buprenorphine provides therapeutic benefits similar to full mu-opioid receptor agonists, but, from the perspective of safety and abuse potential, buprenorphine’s partial agonist designation provides an improved benefit/risk ratio with regard to the misuse, abuse, overdose potential, and deaths occurring in the current opioid epidemic in the United States.

Financial Support: Financial support for the preparation of this abstract was provided by BioDelivery Sciences International, Inc.

First Name: Reginald

Last Name: Fant

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Pinney Associates, Inc.

ID: 75
5-Methoxy-N,N-dimethyltryptamine (5-MeO-DMT): Patterns of use, motives for consumption, and acute subjective effects

Alan Davis, Johns Hopkins Hospital

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Epidemiology

Abstract: Aim: 5-Methoxy-N,N-Dimethyltryptamine (5-MeO-DMT) is a psychoactive compound found in high concentrations in the venom of the Bufo alvarius toad and in a variety of plants. Anecdotal reports are that synthetic and organic preparations of 5-MeO are used for spiritual and recreational reasons and may have psychotherapeutic effects. However, there is no published evidence about the epidemiology of 5-MeO consumption, limiting understanding of the scope of use and possible harms/benefits of consumption. Therefore, we examined patterns of use, motivations for consumption, and acute subjective effects, and potential consequences of using 5-MeO-DMT among an international sample of English-speaking users. Method: Using internet-based advertisements, we recruited 515 respondents (Mage = 35.4, SD=11.7; Male=79%; White/Caucasian=86%; United States=42%) to complete a web-based survey. Results: Most respondents consumed 5-MeO-DMT once a year or less, were motivated for spiritual exploration, and had used less than four times in their lifetime. Similar to other hallucinogenic tryptamines, a majority (>90%) reported acute mystical-type experiences (ineffability, timelessness, awe/amazement, ego/self-liberation, experience of pure being and awareness), and relatively fewer (40%-66%) experienced acute challenging experiences (e.g., felt heart beating, fear). Less than half (39%) reported repeated consumption in the same session, and very few reported craving (8%), or legal (1%), biomedical (1%), or psychiatric (1%) problems related to use. Furthermore, of those who reported being diagnosed with the following psychiatric disorders, most reported improvements in functioning following 5-MeO-DMT use, including improvements related to post-traumatic stress disorder (79%), depression (77%), anxiety (69%), and substance use (~63%). Conclusion: Findings suggest that 5-MeO-DMT is used infrequently, primarily for spiritual exploration, has low addiction liability, and might have psychotherapeutic effects. However, there are no published studies examining the safety of 5-MeO administration in humans. We recommend that future research examine the safety and pharmacokinetics of 5-MeO-DMT administration in humans using rigorous experimental designs.

Financial Support: Dr. Davis was initially supported by a National Institute on Alcohol Abuse and Alcoholism T32 postdoctoral training grant (#AA007477) and subsequently by a NIDA postdoctoral training grant (#DA07209). The funding sources had no role in the design/execution of this study or the interpretation or communication of findings.

First Name: Alan

Last Name: Davis

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Johns Hopkins Hospital

ID: 76
Assessment of drug abuse-related events with MADDERS in SUMMIT-07: A phase-3 study of NKTR-181 in patients with moderate to severe chronic low-back pain

Eileen Rodriguez, Curry Rockefeller Group

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Dependence

Abstract: Aim: NKTR-181, a new chemical entity, is an orally administered, full mu-opioid receptor agonist that demonstrates a reduced rate of CNS entry and may have lower abuse potential relative to existing mu agonists. In SUMMIT-07, a Phase 3 trial, NKTR-181 produced significant analgesia compared to placebo in subjects with moderate to severe chronic low-back pain. Potential abuse-related events were evaluated using the Misuse, Abuse, and Diversion Drug Event Reporting System (MADDERS®), the first standardized system for classifying and quantifying abuse-related events and inappropriate medication use in clinical trials. Methods: SUMMIT-07 compared NKTR-181 (100-400 mg twice daily) and placebo in opioid-naïve adults using an enriched enrollment randomized withdrawal 12-week trial. Subjects coinsidered high risk for opioid abuse were excluded. Potential abuse-related events were identified, assessed, and quantified using the MADDERS® adjudication process, triggered by drug accountability discrepancies (DADs) or adverse events (AEs). Adjudicated events were classified as Abuse, Misuse, Suicide-related, Therapeutic Error, None of the Above, or Unknown. Additional modifers included Tampering, Withdrawal, Addiction-related Indicator, Diversion, or Overdose. Results: Of 1,189 enrolled subjects, 79 (6.6%) had ≥1 MADDERS® event. There were 86 total events (57 AEs and 29 DADs). During titration, 48 (4.0%) subjects had an event, and 31 of 610 (5.1%) had an event during treatment (17 with NKTR-181 and 14 with placebo). Most events were classified as 'None of the Above' (53.5%) or 'Misuse' (17.4%). Five events were adjudicated as 'Abuse' (3 on NKTR-181 and 2 on placebo) and all were triggered by DADs involving missing pills (i.e., returning ≥20% less than expected). Conclusion: There was a low overall incidence of MADDERS® adjudicated events in SUMMIT-07, and no difference in incidence between NKTR-181 and placebo was detected in any of the events. These findings are consistent with other measures in SUMMIT-07, and studies suggesting low abuse potential of NKTR-181.

Financial Support: Nektar Therapeutics

First Name: Eileen

Last Name: Rodriguez

Company Affiliation: Curry Rockefeller Group

ID: 77
Adding working memory training to contingency management for adolescent cannabis misuse: A sequential multiple assignment randomized trial

Catherine Stanger, Dartmouth College

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Treatment

Abstract: Aim. Examine if (1) adding working memory training to abstinence-based contingency management (CM) for adolescents with cannabis use disorder (CUD) and (2) if switching nonresponding teens to higher magnitude CM boosts outcomes. Methods. In Phase 1, youth with CUDs (n=58, Mage = 16, Male=72%) attending an IOP in Baltimore were initially randomly assigned to receive 14 weeks of adjunctive CM or CM plus working memory training (WMT; 25 sessions of Cogmed). In Week 4, drug abstinence was assessed, and a Phase 2 treatment was assigned. Those with negative urine drug tests (Responders) continued in their Phase 1 treatment. Those who were drug-positive (Nonresponders) were randomly assigned to remain in their Phase 1 treatment or to receive a higher magnitude CM program in Phase 2. Urine drug tests were completed weekly. Results. To date N=51 adolescents have completed treatment. Of those, 25 were randomized to CM and 26 to CM+WMT. A total of 31% were Responders (abstinent in Week 4; CM:28%; CM+WMT:35%). 20% dropped out before the Phase 2 assignment (CM:20%; CM+WMT:19%), and 50% were Nonresponders and were randomized to a Phase 2 intervention (CM:52%; CM+WMT:46%). Zero inflated models were used to compare outcomes for those assigned to Phase 1 CM vs. CM+WMT. There were no differences across conditions in the likelihood of having > = 1 negative urine specimen (CM vs. CM+WMT OR=0.41; 95% CI=0.13,1.27). However, among those with > = 1 negative sample, those receiving CM+WMT provided more negative specimens (CM 5.2, CM+WMT=8.0; mean ratio=1.55; 95% CI=1.13,2.12, p < 0 .001). Conclusion. Overall results suggest that WMT may boost abstinence duration among youth with CUD. By June 2018, additional analyses will be completed using N=58 to compare the impact of higher magnitude CM among Nonresponders, and to compare the four embedded treatment strategies reflecting possible combinations of Phase 1 approaches and Phase 2 approaches for Nonresponders.

Financial Support: DA015186, DA029926, DA037202

First Name: Catherine

Last Name: Stanger

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Dartmouth College

Contact Title: Associate Professor

ID: 78
Which client statements matter most in motivational interviewing? A meta-analysis of the relation between subtypes of change or sustain talk and addictive behavior outcome

Michael Bernstein, Brown University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Treatment

Abstract: Aim: Motivational Interviewing (MI) process research focuses on what clients say within an MI session and how this relates to later behavior change. However, little is known about which subtypes of client language are most consistently related to outcome. Methods: We included K=13 MI process studies with 16 effect sizes (ESs) published or in-press in English between 2000 and 2017. Studies were included if an observationally-coded MI intervention for addictive behavior change was conducted with adolescents or adults. To characterize the linkage between client language and outcome, we extracted ESs for 7 subtypes (i.e., reason, desire, need, ability, commitment, taking steps, and other) across three valence types (i.e., total positive [change talk], total negative [sustain talk], proportion positive versus negative [PPVN]). All ESs were modeled as random effects. Outcomes were addictive behavior frequency or heavy frequency at follow up. Results: Among change talk (i.e., positive) statements, only 'other' statements were significantly related to outcome, and this effect was not in the predicted direction (i.e., positively associated with use frequency; r = .074, p
Financial Support: 5R21AA023662 T32DA01618415

First Name: Michael

Last Name: Bernstein

Company Affiliation: Brown University

ID: 79
Health reform and health insurance among persons who use drugs in eastern Kentucky: A prospective cohort analysis

Hannah Knudsen, University of Kentucky

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Policy

Abstract: Aim: Health insurance improves health and reduces mortality. Expanding insurance is a central feature of the Affordable Care Act (ACA). Persons who use drugs (PWUDs) have historically been at high risk of being uninsured. It is unknown if Appalachian PWUDs, who live in an extremely economically distressed region, are more likely to be insured since implementation of the ACA. Methods: A longitudinal cohort of 503 PWUD in eastern Kentucky was interviewed at 7 time-points since 2008 during the Social Networks Among Appalachian People (SNAP) study. The outcome variable was self-reported insurance status at each time-point. Independent variables measured at baseline included sex, age, race, past-month legal income, and lifetime history of injection. Multilevel mixed effects logistic regression models and predictive margins were used to examine change over time and differences in being insured between specific groups. Results: At baseline, only 33.8% of participating PWUDs were insured, and rates were unchanged through the 24-month follow-up. At the 30-month and 36-month follow-ups after implementation of ACA, 50.6% and 87.3% were insured, respectively, which were significantly higher than baseline (p
Financial Support: Supported by the National Institute on Drug Abuse (2R01DA033862).

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Last Name: Knudsen

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: University of Kentucky

ID: 80
Changing career opportunities for trainees and early career professionals in the field of drug abuse science

Bethea Kleykamp, Pinney Associates, Inc.

Abstract Category: Theoretical/Commentary

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Other

Abstract: Aim: Career options for graduate-trained scientists have changed considerably in recent years due to unprecedented social, economic, scientific, and technological changes. Importantly, there has been tremendous growth in the number of PhD-trained scientists, but limited to no growth in permanent academic positions. The purpose of this literature review was to discuss factors that have most impacted career opportunities for junior scientists in the field of drug abuse in the 21st century. Method: Evidence included in this review was obtained from a search of PubMed and Google Scholar databases and search terms included: career, career planning, professional development, addiction, drug abuse. Professional organization websites and reference lists were also reviewed for relevant resources. The focus of our search was on research-related careers rather than clinical careers. Results: The review identified a small number of publications that addressed career planning specific to drug abuse science. However, there was a considerable body of work dedicated more broadly to science careers from which four factors were identified as most relevant to changing career trajectories: 1) changing career options within and outside of academia, 2) economic factors such as constraints on research funding, 3) changing scientific and regulatory environments, and 4) the globalization of research. Conclusions: The present review highlighted four main factors that have and will continue to impact the career trajectories for drug abuse scientists in the 21st century. We recommend that academic institutions, mentors, and professional organizations acknowledge these career shifts and tailor trainee support to take into account career tracks within and outside academia. n addition, we recommend that trainees and early career professional seek out interdisciplinary training opportunities that expose them to a variety of career trajectories and opportunities.

Financial Support: Coauthor BAK: PinneyAssociates provides consulting services on smoking cessation and tobacco harm minimization (including nicotine replacement therapy and digital vapor products) to Niconovum USA, RJ Reynolds Vapor Company, and RAI Services Company, all subsidiaries of Reynolds American, Inc. Our work for RAI focuses on products, regulations, and policies related to smoking cessation and harm minimization; we do not work on combustible conventional cigarettes. In the past three years, PinneyAssociates has also consulted to NJOY, Inc. on electronic nicotine delivery systems. Coauthor CDG : DA036569

First Name: Bethea

Last Name: Kleykamp

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Pinney Associates, Inc.

Contact Title: Post-doc. Fellow

ID: 81
Depression among adolescent newly incident cannabis users from 2012 to 2015

Natalie Gukasyan, Johns Hopkins Hospital

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Adolescent

Abstract: AIM: To investigate symptoms of major depression among newly incident cannabis users (NICUs) under 18 years of age. METHODS: The US National Surveys on Drug Use and Health (NSDUH) 2012-2015 public use data sets were used. 12-17 years olds reporting first cannabis exposure in the prior two years were compared with existing and never users. NICUs were stratified into light, regular, and frequent users (36 days in past year). Analyses used Stata13 and included Pearson X2, multivariate logistic regression, and t tests. RESULTS: 4787 NICUs were identified. Incidence of new onset cannabis use was not different over the 4 years (p=0.3296). Mean age of new users was 15.5±0.2 years and 52.9% were female, compared to existing users who were 16.0 ±0.1 years old and 56.7% male. NICUs were more than twice as likely to report lifetime history of depression (27.1% vs 13.4%, p < 0 .001) but there was no significant difference between regular vs. frequent users (p=0.2). Past year depression was also more common among NICUs than existing and never users (20.1% vs 18.5% vs 9.2%, P < 0 .001). Frequent users with a history of depression were more likely to have suicidal thoughts versus both regular and light users (22.9% vs 22.2% vs 10.7% p < 0 .001). Frequent users were also significantly more likely than light users to have attempted suicide (7.5% vs 2.0% p < 0 .001). Likelihood of seeking professional help for depression did not differ with frequency of use (p=0.91). CONCLUSIONS: Incidence of new onset cannabis use among teenagers remains steady. History of depression is more common among NICUs but is independent of cannabis use frequency. New onset teen cannabis use may serve as an indicator of the need to assess for depression and suicide risk.

Financial Support: None

First Name: Natalie

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Company Affiliation: Johns Hopkins Hospital

ID: 82
Effect of prescription drug monitoring programs on nonfatal and fatal drug overdoses: A systematic review

David Fink, Columbia University Mailman School of Public Health

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Abstract Category: Literature Review

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Policy

Abstract: AIM: Prescription drug monitoring programs (PDMPs) are a key component of the President's Prescription Drug Abuse Prevention Plan to prevent opioid overdoses in the United States. This study aims to examine the association between PDMPs and nonfatal and fatal overdoses. METHODS: A literature search of MEDLINE, Current Contents Connects, Science Citation Index, Social Sciences Citation Index, and ProQuest Dissertations as well as manual review of references was conducted in November 2016. Eligible articles included quantitative, population-based, studies published in English that estimated the effect of PDMPs on nonfatal and fatal overdoses. Two researchers extracted data on the study setting, intervention, analytical model, and results. A meta-analysis was not performed due to the studies' heterogeneity in exposure measures, outcome measures, and data analysis. RESULTS: From 11431 records, 14 articles met the final inclusion criteria; 12 articles examined the effect of PDMP implementation, 1 article examined the combined effect of PDMP implementation and pain-clinic laws, and 1 article examined the effect of PDMP robustness on nonfatal and fatal overdoses. Of the 14 articles, 5 articles reported a significant ($P < .05$) reduction in overdoses, 8 reported no association, and 1 reported a significant ($P < .05$) increase in overdoses. Four specific PDMP operational characteristics were found to reduce fatal overdoses: data sharing with other states, mandatory provider review, monitoring of non-controlled substances, and data updated at least weekly. Three of six studies found an increase in heroin overdoses following PDMP implementation. CONCLUSION: The influence of PDMPs on nonfatal and fatal overdoses is likely driven by a few specific, high-impact, operational characteristics, particularly mandatory provider review. More research is needed to identify both a set of "best practices" and a set of complementary initiatives able to address unintended consequences that might arise from restricting access to persons with opioid dependence.

Financial Support: This work was supported in part by research grants from the US National Institute on Drug Abuse of the National Institute of Health (grant numbers T32DA031099 and R01DA039962) and the Bureau of Justice Assistance (grant number 2016-PM-BX-K005).

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ID: 83
Medical marijuana laws and adolescent marijuana use in the United States: a systematic review and meta-analysis

Aaron Sarvet, New York State Psychiatric Institute

Abstract Category: Literature Review

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Policy

Abstract: Aims: To conduct a systematic review and meta-analysis of studies in order to estimate the effect of U.S. medical marijuana laws (MMLs) on past-month marijuana use prevalence among adolescents. Methods: 2999 articles from 17 literature sources were systematically screened. 11 studies, developed from four ongoing large national surveys, were meta-analyzed. Estimates of MML effects on any past-month marijuana use prevalence from included studies were obtained from comparisons of pre-post MML changes in MML states to changes in non-MML states over comparable time periods. These estimates were standardized and entered into a meta-analysis model with fixed effects for each study. Heterogeneity among the study estimates by national data survey was tested with an omnibus F-test. Estimates of effects on additional marijuana outcomes, of MML provisions (e.g., dispensaries), and among demographic subgroups were abstracted and summarized. Key methodological and modeling characteristics were also described. Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines were followed. Results: None of the 11 studies found significant estimates of pre-post MML changes compared to contemporaneous changes in non-MML states for marijuana use prevalence among adolescents. The meta-analysis yielded a non-significant pooled estimate (standardized mean difference) of -0.003 (95% confidence interval: -0.012, +0.007). Four studies compared MML to non-MML states on pre-MML differences and all found higher rates of past-month marijuana use in MML states pre-MML passage. Additional tests of specific MML provisions, of MML effects on additional marijuana outcomes, and among subgroups generally yielded non-significant results, although limited heterogeneity may warrant further study. Conclusions: Synthesis of current evidence does not support the hypothesis that MMLs up until 2014 have led to increases in adolescent marijuana use prevalence. Limited heterogeneity exists among estimates of effects of MMLs on other patterns of marijuana use, of effects within particular population subgroups, and of effects of specific MML provisions.

Financial Support: Support is acknowledged from R01DA034244 (PI Hasin), R01DA040924 (PI Cerdá), K01DA030449 (PI Cerdá), K01AA021511 (PI Keyes), and by the New York State Psychiatric Institute (Hasin, Wall)

First Name: Aaron

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ID: 84
Is HCV elimination among HIV-infected people who inject drugs possible through HCV treatment targeting HIV/HCV coinfection? A modeling analysis for Andalusia, Spain

Britt Skaathun, University of California San Diego

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: AIDS/Immune

Abstract: Aim: Scale-up of HCV treatment for HIV/HCV coinfected individuals is occurring in Spain, the majority with a history of injecting drug use (IDU). We assess the population impact of HCV treatment scale-up to coinfected individuals, and implications for achieving WHO HCV elimination targets (90% reduction in incidence by 2030) among HIV+ PWID in Andalusia, Spain, using dynamic modeling. Methods: A joint HIV and HCV transmission model among PWID was developed and calibrated to Andalusia (55%/70% chronic HCV prevalence among PWID/HIV+ PWID in 2010, respectively, 30% HIV prevalence among PWID in 2010). We assumed HCV treatment among diagnosed coinfected PWID and exPWID of 10.5%/year from 2004-2014, and 33%/year from 2015 (estimated from the HERACULES cohort). We examined the impact of: 1) current treatment rates and 2) 100% screening and treatment of coinfected PWID from 2018 on HCV chronic prevalence and incidence among HIV+ PWID and PWID. Results: Our model estimated that in 2015, 36% and 47% of HCV infected PWID and exPWID, respectively, in Andalusia were HIV/HCV coinfected. Among them, 26.8% and 60.5% of coinfections, respectively, were diagnosed. Current treatment rates could dramatically reduce the number of prevalent diagnosed coinfected individuals with a history of IDU (77% relative reduction from 2015-2030). However, this would only reduce HCV chronic prevalence by a relative 15% and 10% among HIV+ PWID and all PWID, respectively, due to transmission from PWID with HCV monoinfection and undiagnosed coinfection. If all coinfected PWID were diagnosed and treated annually from 2018, this could lead to a 69% relative reduction in chronic prevalence among HIV+ PWID by 2030, but only 35% decrease in incidence. Conclusion: HCV elimination among HIV+ PWID in Andalusia will not be achieved by treating coinfected PWID alone; efforts should focus on HCV diagnosis and treatment among both coinfected and monoinfected PWID.

Financial Support: Gilead Science, Inc., T32 AI007384, R01 DA037773-01A1, MED4505, MED7793

First Name: Britt

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Company Affiliation: University of California San Diego

ID: 85
Sex-specific neurobiological differences in substance addiction: An educational pilot program for next generation STEM workforce

Philip Vieira, CSU Dominguez Hills

Abstract Category: Program Descriptions

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Other

Abstract: AIM California State University Dominguez Hills (CSUDH) is located in central Los Angeles county, servicing a diverse community. This region is considered a hotspot for drug abuse due to a variety of factors, including a close proximity with the Mexico border, an abundance of transportation facilities to support trafficking, and a substantial population of several at-risk groups. While graduates from CSUDH often go on to work in the community, these students do not yet receive the education in the factors leading to substance addiction. The aim of this program is to provide a set of courses which will train students on the latest addiction prevention and treatment research. The initial pilot course focused on sex-specific and neurobiological corollaries to drug dependence. METHODS During the 2016-2018 academic years, 6 classes of senior undergraduate students were targeted for this program. Students worked individually and in small groups to prepare discussions on the neurobiology of addiction, following several original and secondary literature sources, including Michael Kuhar's The Addicted Brain (2011), peer-reviewed publications and published abstracts from the CPDD conferences from 2014-2017. Discussions with addiction researchers were also included. Students submitted research proposals to address potential gaps in the neuropharmacology literature, focusing on sex-specific studies. Survey data were collected before and after the course to assess learning outcomes and career trajectories for these next generation STEM workforce students. RESULTS This pilot program has been well-received by the participating students. While it was clear that some students struggled with the content, all of them were personally engaged in the material. Indeed, many students openly shared their own experiences with drug dependence. CONCLUSION Students need earlier exposure to the neurobiology of drug abuse to support their success in this course. We will therefore offer a psychopharmacology course to students prior to taking this course.

Financial Support: N/A

First Name: Philip

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Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: CSU Dominguez Hills

ID: 86
Opioid recovery initiation: Pilot test of a peer outreach and modified recovery management checkup intervention for out-of-treatment opioid users

Michael Dennis, Chestnut Health Systems

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: AIM: The recent surge in opioid-related overdoses and related fatalities underscores the need for assertive mechanisms for linking individuals with opioid use disorders (OUD) to treatment. This pilot study investigated the feasibility of an intervention that used peer outreach workers to identify out-of-treatment individuals with OUD combined with a modified version of the Recovery Management Checkup (RMC) to link them to methadone treatment. METHOD: In January-March 2017, trained peer outreach workers went into a high-risk community in Chicago to identify, engage, and refer individuals with OUD to project Linkage Managers. The Linkage Managers used a modified version of the RMC to link and engage them into methadone treatment and sustained contact for a period of 60 days. The GAIN Q-3 was completed at baseline and brief follow-ups at 30 and 60 days post-intake assessed participants' substance use and treatment participation with reference to the past 30 days. RESULTS: Peer outreach workers identified 88 active opioid/heroin users; 72 were screened as eligible, and 70 showed to the study intake/initial linkage meeting. Most participants were male (73%) and African American (94%), with an average age of 52.0 (sd=7.6). Nearly all (67/70, 96%) were admitted to methadone treatment; median time from initial linkage meeting to treatment admission was 2.6 days. Most were still in treatment at 30 and 60 days post-intake (69% and 70%, respectively). Individuals who had ever received naloxone for an opioid overdose were less likely to be in treatment at 30 days post-intake compared with others (52% vs. 77%, OR = 0.33; 95% CI 0.12, 0.96). CONCLUSIONS: The peer outreach-RMC intervention holds promise as an assertive method for identifying and engaging out-of-treatment individuals with OUD into treatment. A larger experimental trial will examine longer-treatment treatment retention, substance use, and psychosocial functioning over 12 months.

Financial Support: NIDA grant no. DA045774

First Name: Michael

Last Name: Dennis

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Chestnut Health Systems

Contact Title: Senior Research Psychologist

ID: 87
Perceived stressors reported by mothers with Opioid Use Disorder: Qualitative findings from an inpatient substance use program

Angela Moreland, Medical University of South Carolina

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Perinatal

Abstract: Aims Opioid use disorder (OUD) in pregnancy is a growing problem, which has increased five-fold over the past decade (Epstein et al., 2013; Flood & Srivasa, 2014). The current study examines sources of reported stress among pregnant women with OUD, in a southeastern city, as rates of OUD in the south are double that of the northeast (Bateman et al., 2014). Specifically, qualitative, semi-structured interviews were conducted with pregnant women with OUD, to identify themes regarding perceived stressors and risk for relapse. Methods Individual, semi-structured interviews (n=18) were conducted with pregnant women with OUD enrolled in an inpatient, substance use treatment program. Data analysis consisted of a qualitative content analysis informed by grounded theory. A three-step inductive approach was utilized; participant's interview responses (i.e., raw data) were examined to develop a codebook to capture all possible themes emerging from the data. Results Three main themes emerged. First, 17 participants (100%) discussed parent-related stressors prior to entering treatment, including parent-specific stressors (88%; e.g., behavior problems, co-parenting), substance use-specific stressors (88%; e.g., inability to be emotionally present, law enforcement), and other stressors (82%; e.g., financial concerns, family). Second, 17 participants (100%) reported stressors during and following treatment, including parenting stressors (100%; e.g., DSS, unable to see children), substance use-related stressors (88%; e.g., children not understanding SU, risk for relapse), and other stressors (88%; e.g., unemployment). Third, parents discussed positive impacts about being a parent (47%), including children as motivation (35%) and wanting to be a good parent (29%). Conclusions Parents with OUD report significant and unique stressors associated with substance use and treatment. Parents reported the same stressors during and following treatment as prior to treatment, with some additional stressors reported following treatment. Findings have significant clinical implications to prevention of negative outcomes for parents with OUD involved in substance use treatment.

Financial Support: This study was supported by grant 5K12DA031794-03 to support the first author, as well as by NIH grants P50DA016511, R01DA021690, and K24DA038240 to support work by the last author.

First Name: Angela

Last Name: Moreland

Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: Medical University of South Carolina

ID: 88
Epigenetic detection of alcohol use disorder in a clinically ascertained sample

Allan Andersen, University of Iowa

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Alcohol

Topic: Genetics

Abstract: AIM Detection of alcohol use disorder (AUD) is complicated by low accuracy of self-report in both clinical and research settings. Improved biomarkers for AUD are needed as current biomarkers are similarly limited in sensitivity and may produce false positives. Epigenetic biomarkers for AUD have the potential to overcome these obstacles and improve detection. METHODS We present epigenetic data from 80 individuals with AUD ascertained in inpatient AUD treatment settings and 79 controls, comparing the accuracy and utility seven CpG residues selected from 448,058 probes in predicting AUD status. RESULTS Using independent test and train datasets, we show that a predictive model of AUD combining all seven CpGs offers an AUC 0f 0.95 and a Brier R2 of 0.55. Two single CpG predictive models provide AUCs of 0.88 and 0.82, respectively, and are not significantly different from the full seven CpG model in predictive utility or accuracy. CONCLUSION Our results suggest the feasibility of using single and multi-CpG biomarkers to detect AUDs in both clinical and research settings.

Financial Support: This work was supported by NIH grant R01DA037648 (Philibert) and NIDA grant 5 K12 DA 000357 17 (Andersen)

First Name: Allan

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Degrees: MA MD Ph.D etc:: MD

Company Affiliation: University of Iowa

ID: 89
Cannabinoid-like effects of five novel MDMB and FUBINACA synthetic cannabinoids

Michael Gatch, University of Texas Health Science Center

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Marijuana/Cannabinoids

Topic: Behavior

Abstract: Aims: A new generation of novel cannabinoid compounds have been developed as marijuana substitutes to avoid drug control laws and cannabinoid blood tests. 5F-MDMB-PINACA (5F-ADB), MDMB-CHIMICA, MDMB-FUBINACA, ADB-FUBINACA, and AMB-FUBINACA (FUB-AMB, MMB-FUBINACA) were tested for in vivo cannabinoid-like effects to assess their abuse liability. Methods: Locomotor activity in mice was tested to screen for locomotor depressant effects and to identify behaviorally-active dose ranges and times of peak effect. Discriminative stimulus effects were tested in rats trained to discriminate Δ9-tetrahydrocannabinol (3 mg/kg, 30-min pretreatment). Results: 5F-MDMB-PINACA (ED50 = 1.1 mg/kg) produced short-acting (30 min) depression of locomotor activity. MDMB-CHIMICA (ED50 = 0.02 mg/kg), ADB-FUBINACA (ED50 = 0.20 mg/kg), and AMB- FUBINACA (ED50 = 0.18 mg/kg) depressed locomotor activity for 60-90 min; whereas MDMB-FUBINACA (ED50 = 0.03 mg/kg) depressed locomotor activity for 150 min. 5F-MDMB-PINACA (ED50 = 0.071) and AMB- FUBINACA (ED50 = 0.029) fully substituted for the discriminative stimulus effects of Δ9-THC following 15-min pretreatment. No suppression of response rate was observed. Conclusions: All 5 compounds decreased locomotor activity and two compound produced discriminative stimulus effects similar to those of Δ9-THC, which suggests they may have abuse liability similar to that of Δ9-THC. 5F-MDMB-PINACA produced short-acting locomotor depressant and discriminative stimulus effect, which suggests it may have a greater risk of dependence than cannabinoids with slow onset.

Financial Support: NIH N01DA-13-8908

First Name: Michael

Last Name: Gatch

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: University of Texas Health Science Center

Contact Title: Research Assistant Prof.

ID: 90
MDMA-like effects of synthetic cathinones

Michael Gatch, University of Texas Health Science Center

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Club/Designer Drugs

Topic: Behavior

Abstract: Aims: Many of the synthetic cathinones are sold as "legal" alternatives to the club drug 3,4-methylenedioxy-methamphetamine (MDMA); however, few of the cathinone compounds have been assessed for MDMA-like activity. The purpose of this study was to test whether commonly marketed cathinone compounds produce MDMA-like discriminative stimulus effects. Methods: Dibutylone, dimethylone, ethylone, methylenedioxypyrovalerone (MDPV), methcathinone, naphyrone and N-ethylpentylone were tested for substitution in rats trained to discriminate MDMA (1.5 mg/kg) from saline. Results: Dibutylone, dimethylone, and ethylone fully substituted for the discriminative stimulus effects of MDMA at doses that did not alter response rate. The remaining compounds produced sub-maximal levels of MDMA-appropriate responding up to doses that suppressed responding. MDPV produced a maximum of 62% MDMA-appropriate responding, methcathinone produced 34%, naphyrone 71%, and N-ethylpentylone 51%. Conclusions: Not all cathinones produce MDMA-like effects. Most of the cathinones previously tested have produced both methamphetamine-like and MDMA-like effects with similar potencies, and all fully substituted for the discriminative stimulus effects of methamphetamine. A few compounds have been MDMA-like but not methamphetamine-like (MDAI, 5-APB, 6-APDB), but these are not cathinones. The dissociation may be due to relative selectivity for the dopamine and serotonin transporters. These findings suggest that not all cathinones may have continued use as club drugs.

Financial Support: N01DA-13-8908

First Name: Michael

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Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: University of Texas Health Science Center

Contact Title: Research Assistant Prof.

ID: 91
Lifetime use of non-nicotine drugs in electronic cigarette devices among a sample of individuals in substance use treatment

Noah Gubner, University of California San Francisco

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Other

Abstract: Aims: There is limited research on the use of non-nicotine psychoactive drugs in electronic cigarette (e-cigarette) devices. The goal of this research was to determine how prevalent the use of this novel route of administration was among a sample of individuals in addiction treatment. Methods: We surveyed 214 individuals from three residential substance abuse treatment centers located in San Francisco, CA. Overall prevalence of e-cigarette use (lifetime, and past 30 days) was assessed. Individuals reporting any lifetime use of an e-cigarette/ vape pen were asked about ever use of other drugs in their e-cigarette/ vape pen. Those that reported use of non-nicotine drugs in their e-cigarette/ vape pen also reported what psychoactive drugs were used. Results: Among the full sample, 56.5% (N=121) reported any lifetime use of e-cigarettes, with 34.1% (N=73) reporting past 30-day use. Among all e-cigarette users, 51.2% (N=62) reported ever using a non-nicotine drug in their e-cigarette/ vape pen. The most common drug used in an e-cigarette device was marijuana/ THC/ hash, 42.1% (N=51) of all e-cigarette users. The use of amphetamine/ methamphetamine in an e-cigarette was also reported by 19.8% (N=24) of all e-cigarette users. A lower frequency of other drugs were reported: crack/ cocaine (3.3%, N=4), heroin (4.1%, N=5), and other opiates (4.1%, N=5). Conclusions: Among a sample of individuals in addiction treatment we report a high prevalence of ever use of non-nicotine containing drugs in e-cigarettes/ vape pens with THC/ marijuana and amphetamines being most common. Little is known about the prevalence and pharmacology of these alternative routes of administering psychoactive drugs. Rodent models have found that e-cigarette devices can deliver biologically and behaviorally relevant levels of non-nicotine psychoactive drugs. Further research is needed to evaluate the use of e-cigarettes for self-administration of psychoactive drugs, a use outside of their intended application.

Financial Support: TRDRP 25CP-0002, NIH: NIDA F32 DA-042554, and NCI Cancer Center Support Grant P30 CA082103.

First Name: Noah

Last Name: Gubner

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: University of California San Francisco

ID: 92
Immune dysregulation among HIV-infected individuals with opioid-use disorders

Christina Lancioni, Oregon Health & Science University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: AIDS/Immune

Abstract: Aim: An estimated 25-57% of HIV-infected individuals are dependent on opioids. Opioids facilitate HIV replication, contribute to gut barrier dysfunction, and disrupt immune regulation. Thus opioids may drive immune dysregulation and accelerate progression to AIDS and non-AIDS related morbidities and mortality. We aimed to determine whether markers of immune dysregulation differ between HIV-infected individuals with opioid-use disorders (HIV/OUD+), and HIV-infected individuals without OUD (HIV/OUD-). Methods: Peripheral blood mononuclear cells and plasma were obtained from HIV/OUD+ participants in the CHOICES CTN-0055 study and HIV/OUD- participants from an HIV clinic. Using flow cytometry, we quantified indicators of immune dysregulation: CD4+ and CD8+ T cell expression of HLA-DR, CD38, CD57, and PD-1. Monocyte activation was assessed by sCD14 and sCD163 plasma levels. Data were transformed and analyzed using a general linear model, with adjustment for HIV viral load (VL). Results: Mean CD4+ T cell count was comparable between HIV/OUD+ (N=20) and HIV/OUD- (N=18) individuals [637 cells/µl (±394) versus 620 cells/ µl (±354), $p > 0.05$)]. VL was undetectable in 94% of HIV/OUD- participants and 55% of HIV/OUD+ participants, with mean VL 1296 copies/ml (±1359) among those with viremia. Unadjusted analysis demonstrated significantly greater CD8+ T cell activation (CD8+CD38+, $p=0.0035$; CD8+CD38+HLADR+, $p=0.02$) and exhaustion (CD8+PD-1+, $p=0.02$), among HIV/OUD+ as compared to HIV/OUD- participants. A trend towards higher monocyte activation (sCD163 plasma values, $p=0.06$) was also observed among HIV/OUD+ participants. Following adjustment for VL, CD8+ T cell activation (CD8+CD38+) remained significantly elevated among HIV/OUD+ compared to HIV/OUD- participants ($p = 0.02$). Conclusions: OUD were associated with exaggerated CD8+ T cell and monocyte activation, and CD8+ T cell activation remained significantly elevated following adjustment for VL. Thus, opioids may independently drive immune dysregulation to contribute to poor outcomes among individuals with HIV.

Financial Support: NIH R03 DA39731, U10 DA015815

First Name: Christina

Last Name: Lancioni

Degrees: MA MD Ph.D etc:: MD

Company Affiliation: Oregon Health & Science University

ID: 94
Kratom use patterns among opioid users in United States: A novel form of harm-reduction?

Kirsten Smith, University of Louisville; University of Kentucky Center on Drug & Alcohol Research

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Other

Abstract: Aim: Little is known about the use of kratom among substance-using individuals in the U.S. Based on kratom's pharmacokinetics along with preliminary findings, kratom may be used as a drug substitute or as a self-medication for detoxification. Additionally, kratom may be used along with opioids for potentiation or mitigation effects. The aim of this study was to determine what support exists for the hypothesis that kratom is being used as a self-medication form of harm-reduction among individuals with opioid use disorders (SUD) (i.e. any opioid agonist including heroin, non-medical prescription opioids). Methods: Survey data from 309 opioid users from 5 peer-led, long-term residential recovery programs were examined for their experiences with kratom. Logistic regression analyses were used to analyze demographic and past 12-month opioid use as predictors of the likelihood for lifetime and past 12-month kratom use. Results: Of the final sample of opioid users (N= 309), 26.88% of respondents endorsed lifetime kratom use and 12.85% reported past 12-month use, with kratom-users more likely to be younger than non-users (x = 32.61 vs. 33.48). Gender, race, and employment status were not significantly associated with lifetime or past 12-month kratom use. Past 12-month non-prescribed Suboxone use (OR= 2.29; p = 0.013), but not past 12-month opioid or heroin use, was the greatest predictor of the likelihood of lifetime kratom use. For past 12-month kratom use, individuals reporting past 12-month non-prescribed Suboxone use (OR= 3.76; p= 0.012) were more likely to have reported past 12-month kratom use. Conclusion: Results suggest the possibility that kratom is being used as a legal, informal self-medication harm-reduction method among individuals with a history of OUD. The FDA's assessment of kratom as a "drug of abuse" suggests likely scheduling by the Drug Enforcement Administration, thus limiting kratom as a licit option for self-management of OUD.

Financial Support: None

First Name: Kirsten

Last Name: Smith

Company Affiliation: University of Louisville; University of Kentucky Center on Drug & Alcohol Research

ID: 96
Reducing heavy drinking and alcohol-involved crime with behavioral economics: Insights from 24/7 sobriety

Beau Kilmer, RAND Drug Policy Research Center

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Alcohol

Topic: Policy

Abstract: AIM. Excessive alcohol consumption poses a significant threat to public health and safety. Efforts to reduce alcohol-involved crime traditionally prioritize sanction severity over certainty and celerity, which is problematic since hyperbolic discount rates and time-inconsistencies in decision making are particularly acute among intoxicated drivers and heavy users. In 2005, South Dakota implemented a program based on insights from behavioral economics for alcohol-involved offenders (24/7 Sobriety) that required participants to abstain from alcohol and be tested for alcohol multiple times per day. Those failing or missing a test are subject to a swift, certain, and modest sanction, typically a night or two in jail. This paper tests the hypothesis that 24/7 Sobriety reduces criminal behavior among those arrested for driving under the influence. METHODS. Our quasi-experimental analysis is based on 20,243 individuals who were arrested for a second or third drunk driving offense in South Dakota from 2004 to 2011. We obtained the complete criminal history information for these individuals (including probation revocations) and determined whether they participated in 24/7 based on the program's administrative records. To estimate the effect of 24/7 on the probability of being arrested or having probation revoked, we use program availability in a county as an instrumental variable for individual participation. RESULTS. We estimate that relative to non-24/7 participants, 24/7 reduces arrests and revocations by 13.7 percentage points (49 percent; p

Financial Support: This research was supported by the National Institute on Alcohol Abuse and Alcoholism (R01AA020074 and R01AA024296)

First Name: Beau

Last Name: Kilmer

Degrees: MA MD Ph.D etc:: Ph.D

Company Affiliation: RAND Drug Policy Research Center

ID: 98
Medication for opioid use disorder and mortality after inpatient opioid detoxification treatment

Alexander Walley, Boston University School of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: Aim: Inpatient opioid detoxification treatment typically reduces opioid tolerance, but can be an opportunity to initiate medication for opioid use disorder (MOUD) treatment. We hypothesized MOUD after opioid detoxification treatment would be associated with reduced risk of opioid-related and all-cause mortality. Methods: We conducted a retrospective cohort study of 29,487 Massachusetts residents ages 11 and older who received opioid detoxification treatment between 2012-2014. We used seven individually linked public health datasets representing 98% of Massachusetts residents. We examined three MOUD: methadone maintenance treatment (MMT), buprenorphine, and naltrexone. We identified exposure to MOUD in monthly intervals, considering individuals exposed to MOUD through the month following last receipt. We used a multivariable Cox proportional hazards model to examine MOUD as the monthly time-varying exposure variable to predict time to death, adjusted for age, gender, anxiety or depression diagnoses, opioid or benzodiazepine prescriptions, and subsequent inpatient addiction treatment exposure. Results: In twelve months after detoxification, 14,287 (48%) received any MOUD: 6,883 (23%) received MMT for a median of 6 months (interquartile range [IQR, 3-10]), 7,420 (25%) received buprenorphine for a median of 4 months (IQR, 2-8), and 2,559 (9%) received naltrexone for a median of 1 month (IQR, 1-2). At one year, all-cause mortality was 1.5% and opioid-related overdose mortality was 1.0%. MMT was associated with decreased all-cause (adjusted hazard ratio (AHR):0.38 [95% confidence interval (CI):0.26-0.55] and opioid-related mortality (AHR:0.35 [95% CI:0.22-0.56]). Buprenorphine was associated with decreased all-cause (AHR:0.57 [95% CI:0.41-0.79]) and opioid-related mortality (AHR: 0.57 [95% CI:0.38-0.84]). Naltrexone was not associated with all-cause (AHR:1.34 [95% CI:0.75-2.39]) or opioid-related mortality (AHR:1.67 [95% CI:0.90-3.06]). Conclusion: Mortality was high in the year after inpatient opioid detoxification and only half of individuals were treated with MOUD. MMT and buprenorphine were associated with substantially reduced mortality. MMT and buprenorphine should be standard of care following inpatient opioid detoxification.

Financial Support: Boston University Clinical and Translational Science Institute pilot funding.

First Name: Alexander

Last Name: Walley

Degrees: MA MD Ph.D etc:: M.D.

Company Affiliation: Boston University School of Medicine

ID: 99
Australian centre for cannabinoid clinical and research excellence (ACRE): A novel multidisciplinary approach to evidence development and translation

Jan Copeland, Cannabis Information and Support

Abstract Category: Program Descriptions

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Policy

Abstract: Currently 29 US states and DC have various legislative regimes to access medicinal cannabis for a range of conditions despite the inconclusive evidence base for the safety and efficacy of cannabinoids for the majority of those conditions. Australians now also have access to cannabinoids for medicinal purposes under the supervision of a doctor. Significant harm to the community may be imposed by an unregulated approach to the provision of medicinal cannabis and cannabinoid products without the necessary scientific evidence base and appropriate pharmacovigilance. Legislators, medical practitioners and patients need to know how to monitor patient outcome data, be assured of quality and chemistry of plant and soil, and be informed by appropriately designed and optimised pharmaceutical dosage forms that best suit each medical condition. As a result, the Australian government has funded a unique, multidisciplinary Centre for Research Excellence (ACRE) to provide national governance, leadership and workforce for a research infrastructure based on real world community data and clinical need. We will outline the work of the three research clusters. The first is landscape mapping and knowledge transfer which will focus on pharmacovigilance and promoting effective transfer of research outcomes into health policy and practice. The second is working on mechanistic studies and drug development through establishment of a national early phase clinical pharmacology hub and preclinical and clinical studies of medicinal cannabinoids. The third is responsible for plant science and will develop a plant cannabinoid library and plant/soil science and pharmaceutical optimisation of relevant compounds. They will drive a combined laboratory (soil, plant, pharmaceutics) animal and human research agenda with translation back into primary health care and policy guidelines.

Financial Support: The Centre is funded by the Australian National Health and Medical Research Council

First Name: Jan

Last Name: Copeland

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Cannabis Information and Support

ID: 100
Does liberalization of cannabis policy influence adolescents' levels of use? A systematic review

Marine Azevedo Da Silva, Pierre Louis Institute for Epidemiology and Public Health, Department of Social Epidemiology

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Abstract Category: Literature Review

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Epidemiology

Abstract: Aim We conducted a systematic review of the English-language scientific literature to evaluate the consequences of such liberalization of cannabis policies on patterns of use among adolescents and young adults. Methods Published articles testing quantitative differences in cannabis use among 10-25 year olds following change in cannabis policy were searched for in Pubmed, PsycINFO, Embase and Web of Science following PRISMA guidelines. The terms (law* OR decriminalization OR legalization) AND (cannabis OR pot OR weed OR marijuana OR grass) AND (young OR youth OR adolescen* OR teen* OR school* OR student) were looked for both in MeSH terms and text words. The eligibility of titles and abstracts was reviewed by two independent readers. Full articles were read by two authors to assess the risk of bias following the Quality Assessment Tool for Observational and Cohort and Cross-Sectional Studies developed by the National Institute of Health (NIH). Results 3099 records initially matched our search terms and 4 were identified through citation lists; 1935 remained after the removal of duplicates, 89 were assessed for eligibility and 38 original research reports were included in our systematic review. 14 studied the consequences of cannabis decriminalization, 18 the legalization of cannabis use for medical purposes and 6 the legalization of cannabis use for recreational purposes. Among studies with a very low or low risk of bias, we found no evidence of a change in cannabis use following decriminalization or legalization of use for medical purposes. The legalization of cannabis use for recreational purposes may however be followed by an increase in levels of use in adolescents and young adults. Conclusion The liberalization of cannabis policies does not appear to result in significant changes in patterns of use among adolescents and young adults, with the important exception of legalization of use for recreational purposes.

Financial Support: None

First Name: Marine

Last Name: Azevedo Da Silva

Degrees: MA MD Ph.D etc:: Ph.D

Company Affiliation: Pierre Louis Institute for Epidemiology and Public Health, Department of Social Epidemiology

ID: 101
A prospective study of alexithymia, negative mood and alcohol expectancies among alcohol-dependent treatment seekers

Fred Thorberg, Innlandet Hospital Trust

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Alcohol

Topic: Dependence

Abstract: Aim: Up to 67% of alcohol-dependent patients in treatment have alexithymia, a personality trait associated with mood-regulation difficulties. Other factors, such as negative mood and alcohol expectancies, are also considered key factors associated with excessive drinking. Yet no longitudinal study has investigated the relationship of alexithymia, negative mood and alcohol expectancies among patients with alcohol problems. The aim of this study was to explore this relationship and to test the extent to which alexithymia contributes to predicting negative mood and alcohol expectancies. Methods: 92 consecutive patients (72% males), 18-66 years of age, undertaking Cognitive-Behavioral Therapy for alcohol dependence, were assessed before the commencement (baseline) and at the end (12 weeks-follow-up) of a treatment program. Participants were detoxified prior to assessment and completed the Toronto Alexithymia Scale (TAS-20), the Depression Anxiety Stress Scales (DASS-21) and the Drinking Expectancy Questionnaire (DEQ). Results: At baseline, TAS-20 total score, Difficulties Identifying Feelings (DIF) and Difficulties Describing Feelings (DDF) were significantly positively correlated with DASS-Stress, Anxiety and Depression as well as DEQ-Assertion and Affective Change scores. Multiple regression analyses, controlling for baseline age and sex, demonstrated that alexithymia was associated with higher DASS-Depression, DEQ-Tension Reduction and Affective Change Alcohol Expectancies at 12-weeks follow-up. Conclusion: These findings highlight the importance of alexithymia as a prospective predictor of depression, tension reduction and affective change alcohol expectancies among alcohol-dependent treatment seekers.

Financial Support: Innlandet Hospital Trust, Norway, Grant 150234

First Name: Fred

Last Name: Thorberg

Degrees: MA MD Ph.D etc:: MA, Ph.D.

Company Affiliation: Innlandet Hospital Trust

ID: 102
Neurochemical and cardiovascular effects of beta-methyl phenethylamine analogs found in dietary supplements

Charles Schindler, NIDA Intramural Research Program

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Stimulants

Topic: Mechanisms of Action

Abstract: Aim: Dietary supplements often contain additives not listed on the label. b-Methylphenethylamine (BMPEA, 2-phenylpropan-1-amine), a structural isomer of amphetamine (a-methylphenethylamine), is one such ingredient. The aim of this study was to determine the neurochemical and cardiovascular effects of BMPEA and its analogs, N-methyl-2-phenylpropan-1-amine (MPPA) and N,N-dimethyl-2-phenylpropan-1-amine (DMPPA). Methods: Synaptosomes were prepared from rat caudate tissue for dopamine transporter (DAT) assays or from whole rat brain minus caudate and cerebellum for norepinephrine transporter (NET) assays. Five male Sprague-Dawley rats received surgically-implanted telemetry transmitters for the measurement of blood pressure (BP), heart rate (HR) and locomotor activity. Rats were placed into acoustical cubicles for 3 h each weekday, and drug or vehicle was administered on Tuesdays and Fridays. Results: As expected, amphetamine was a potent substrate-type releasing agent at DAT (EC50 = 5 nM) and NET (EC50 = 8 nM). Like amphetamine, BMPEA was a releaser at DAT (EC50 = 627 nM) and NET (EC50 = 125 nM), while MPPA had similar effects. DMPPA was a weak substrate only at NET (EC50 = 1337 nM). In general, the releasing actions of BMPEA analogs were more potent at NET than DAT. Amphetamine (0.3-3.0 mg/kg, sc) produced significant dose-related increases in BP, HR and activity (all $F[4,34] > 8.9$, p 4.1, $p < 0.05$). However, BMPEA and its analogs failed to clearly affect HR or activity. The hypertensive effect of BMPEA was reversed by pretreatment with the a-adrenergic antagonist prazosin. Conclusion: Our results show that BMPEA and its analogs are biologically active. Although these compounds are unlikely to be abused due to weak effects at DAT, they could produce adverse cardiovascular complications due to prominent releasing activity at NET.

Financial Support: Supported by IRP, NIDA, NIH, DHHS.

First Name: Charles

Last Name: Schindler

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: NIDA Intramural Research Program

Contact Title: Senior Investigator

ID: 103
Opportunistic drinking refusal self-efficacy moderates the relationship between borderline personality traits and alcohol consequences

Emily Grekin, Wayne State University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Alcohol

Topic: Mechanisms of Action

Abstract: Aim: Borderline Personality Disorder (BPD) traits are associated with heavy drinking and experiencing more drinking consequences. The current study sought to examine whether drinking refusal self-efficacy, or an individual's confidence in their ability to refuse alcohol, moderates the relationship between BPD symptoms and alcohol consequences. Methods: Participants (N = 572) were young adults who completed the Borderline Symptom List-23 (BSL-23), the Drinking Refusal Self-Efficacy Questionnaire (DRESQ), and the Brief Young Adult Alcohol Consequences Questionnaire (YAACQ). In order to examine whether the three types of drinking refusal self-efficacy (emotional relief, social pressure, opportunistic) moderated the relationship between borderline personality traits and drinking consequences, three linear regressions were conducted (one for each drinking refusal self-efficacy subscale). The regressions sought to examine 1) The main effects of BPD traits and each drinking refusal self-efficacy subscale on drinking consequences 2) The interaction between BPD traits and each drinking refusal self-efficacy subscale. Results: BPD traits were associated with more drinking consequences (βs > .11 =, ps .63), Conclusions: Both BPD traits and drinking refusal self-efficacy are related to alcohol consequences. High drinking-refusal self-efficacy in situations involving opportunistic drinking may be a protective factor against alcohol consequences among individuals with higher levels of BPD traits.

Financial Support: None

First Name: Emily

Last Name: Grekin

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Wayne State University

ID: 104
Slow-wave sleep disruption is associated with increased insula activity during inhibitory control in adolescents

Lora Cope, University of Michigan

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Alcohol

Topic: Imaging

Abstract: AIM: Impulsive and risky behavior such as drug and alcohol use during adolescence is thought to be related in part to an imbalance between bottom-up reward and top-down control system development. Sleep changes (e.g., a reduction in slow-wave sleep) may also contribute to these adolescent-typical behaviors. This study examined the relation between experimental slow-wave sleep disruption and brain activity associated with inhibitory control in healthy adolescents. METHODS: Thirty adolescents (ages 15–17; 53% female) with little or no lifetime substance use slept three nights in the sleep lab (adaptation, slow-wave disruption, and control) over two weeks. On the mornings following disruption and control, participants underwent functional magnetic resonance imaging while performing a go/no-go task. Inhibitory control was probed with a correct rejections vs. baseline contrast. Mean signal change in each of the following regions of interest (ROIs) was extracted for further analysis: anterior cingulate, insula, dorsolateral prefrontal cortex, and inferior frontal gyrus. RESULTS: As designed, time spent in slow-wave sleep was shorter during disruption vs. control (t[29]=5.60, p
Financial Support: R01 AA022339 T32 AA007477 UL1 TR000433

First Name: Lora

Last Name: Cope

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: University of Michigan

ID: 105
Treating cannabis use disorder among young adults: A pilot randomized clinical trial of text vs. in-person delivered peer network counseling

Michael Mason, University of Tennessee

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Treatment

Abstract: BACKGROUND: Approximately 1.8 million young adults aged 18 to 25 had a Cannabis Use Disorder (CUD) in the past year. Unfortunately, engaging young adults in treatment is very challenging. Creative approaches to treat cannabis disorders such as integrating mobile technology with evidence-based treatments are warranted. AIMS: In light of these challenges, we developed a text message-delivered version of Peer Network Counseling (PNC-txt), which is a substance use intervention that focuses on peer relations. PNC-txt engages participants in 16 automated, personalized, and interactive "conversations" over 4 weeks. MEOTHODS: We conducted a randomized controlled trial to test the efficacy of PNC-txt against a waitlist control group with 30 young adults (ages 18-25) who met DSM-5 criteria for CUD. Self-report and urine analyses were used to test outcomes at the three-month follow-up. RESULTS: The PNC-txt group significantly reduced their cannabis use problems compared to the control group. Moderation analysis suggested that PNC-txt is more effective for participants with moderate to high levels of CUD severity, but not for those with low severity. PNC-txt significantly reduced cannabis craving during the 4-week treatment period compared to controls. PNC-txt participants also had a significantly greater percentage with negative urines compared to controls. All effect sizes ranged from medium to large. CONCLUSION: The findings from this small trial provide preliminary evidence that PNC-txt may be efficacious in reducing cannabis related problems for those with moderate and high levels of CUD severity, reducing cannabis craving, and reducing positive THC results among young adults. Based on our review of the literature, this study is the only published randomized clinical trial testing a text message-based intervention to treat cannabis use among young adults. SUPPORTED BY: Virginia Commonwealth University, Department of Psychiatry

Financial Support: Virginia Commonwealth University, Department of Psychiatry; internal funds

First Name: Michael

Last Name: Mason

Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: University of Tennessee

ID: 106
Medication-assisted treatment for opioids among veterans being treated for pain

Lisham Ashrafioun, VA VISN 2 Center of Excellence for Suicide Prevention

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: AIM: The purpose of the study was to assess characteristics of veterans initiating medication assisted treatment (MAT) among patients seeking pain services. METHODS: National Veterans Health Administration (VHA) electronic medical record data was used to identify veterans initiating VHA specialty pain services from Fiscal Year 2012 to 2014. Procedure and billing codes were used to identify veterans who started using MAT for opioids within the year following the initiation of pain services (i.e., index visit). Data on demographics, psychiatric and medical diagnoses, and pain intensity scores were extracted. RESULTS: The cohort was comprised of 209,191 veterans, of which 2,294 (1.1%) had received MAT in the year following the index visit. Only 599 of the 8,980 (6.7%) veterans with an opioid use disorder (OUD) received MAT and just 26.1% of veterans who received an MAT had an OUD. In adjusted analyses, opioid use disorders (Odds Ratios [OR]=5.84, 95% Confidence Interval [CI]=5.22-6.53) and opioid prescriptions (OR=2.35, 95% CI=2.11-2.61) were significantly associated with greater odds of receiving MAT following pain treatment services. While depression was associated with greater odds of receiving MAT (OR=1.26, 95% CI=1.15-1.38), PTSD was associated with greater odds of not receiving it (OR=0.89, 95% CI=0.80-0.97). Furthermore, alcohol use disorder diagnoses were associated with greater odds of not receiving MAT (OR=0.87, 95% CI=0.77-0.98), yet drug use disorders were associated with greater odds of receiving it (OR=1.32, 95% CI=1.17-1.49). A one-point increase in one's 6-month mean pain intensity was also associated with a 7.8% increase in odds of receiving MAT (95% CI=1.06-1.10). CONCLUSION: Several clinical features differentiate veterans who are receiving MAT compared to those who do not, however, a substantial proportion of veterans with pain and comorbid OUD are not receiving MAT despite its potential benefits. Additional research is needed to identify specific barriers to MAT among veterans experiencing pain.

Financial Support: n/a

First Name: Lisham

Last Name: Ashrafioun

Degrees: MA MD Ph.D etc:: Ph.D

Company Affiliation: VA VISN 2 Center of Excellence for Suicide Prevention

ID: 107
Injectable naltrexone, oral naltrexone, and buprenorphine/naloxone and overdose among individuals treated for opioid use disorder in a United States commercially insured population

Jake Morgan, Boston University School of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: AIM We compared overdose risk in a nationally representative sample of commercially insured patients who initiated one of three medications for opioid use disorder (MOUDs): 1) extended release injectable naltrexone (XR-NTX, 2) oral naltrexone, or 3) buprenorphine/naloxone. We hypothesized there would be differences in overdose among MOUDs. METHODS We employed the Market Scan commercial claims database to construct a retrospective cohort of individuals diagnosed with opioid use disorder who initiated MOUD treatment between 2010-2014. We compared the demographics of patients prescribed each drug and fit a Cox proportional hazards model of time to overdose (identified by ICD-9) as a function of current MOUD use, treating MOUD as time-varying, controlling for age, sex, comorbidities, and concurrent prescription of sedating drugs (gabapentin, benzodiazepines, and others). RESULTS The cohort included 35,272 individuals (1.5% XR-NTX, 9.6% oral naltrexone, 80.8% buprenorphine, and 8.1% two or more) with 66,864 person-years of follow-up. Compared to the other MOUDs, those exclusively prescribed XR-NTX were less likely to have polypharmacy and more likely to be under 30 and male. Those treated with buprenorphine/naloxone and oral naltrexone had a reduced risk of overdose compared to those previously prescribed MOUDs but were not currently on therapy (HR=0.45, 95% CI 0.39-0.52 and HR=0.62, 95% CI 0.39-0.52, respectively). There was no significant difference in risk of an overdose between those currently on XT-NTX and those not on therapy. CONCLUSIONS We demonstrate in a real-world dataset that buprenorphine/naloxone and oral naltrexone were associated with substantially reduced risk of overdose. Patients currently on XR-NTX therapy, however, experienced no significant overdose protection, even when treating XR-NTX exposure in a time updated manner and controlling for both co-morbidities and polypharmacy use. Limitations include a small number of XR-NTX patients and potential misclassification, for example if XR-NTX was administered the same week but after an overdose.

Financial Support: This study was funded by the National Institute on Drug Abuse (P30DA040500 and R01DA031059).

First Name: Jake

Last Name: Morgan

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Boston University School of Medicine

ID: 108
Moderation of buprenorphine therapy efficacy for cocaine dependence by variation of the preprodynorphin gene

David Nielsen, Baylor College of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Stimulants

Topic: Genetics

Abstract: TITLE: Moderation of buprenorphine therapy efficacy for cocaine dependence by variation of the preprodynorphin gene AIMS: To identify genetic markers that moderate therapeutic response to Suboxone treatment of cocaine addiction. METHODS: Cocaine-dependent participants (N = 302) were randomly assigned in the CTN-0048 Cocaine Use Reduction with Buprenorphine clinical trial to a platform of injectable, extended release naltrexone (XR-NTX) and one of three daily medication arms: 4 mg BUP (BUP4), 16 mg BUP (BUP16), or placebo (PLB) for 8 weeks. All participants received once-weekly cognitive behavioral therapy. DNA was obtained from 277 participants. Treatment response was determined by percent cocaine negative urines per total possible urines over each one-week period resulting in treatment effectiveness scores (TES). Differences in TES from week 3 to 7 between groups were evaluated. RESULTS: The BUP16 group had higher TES compared to PLB group ($p = 0.005$), but not to the BUP4 group. Interactions of variant x treatment were observed for two variants of the preprodynorphin (PDYN) gene (experiment-wise $p=0.0001$ for rs1022563 and $p< 0.0001$ for rs910079). The BUP16 group had higher TES (52 to 60%) than did the PLB group (31 to 41%) in the rs1022563 A-allele carriers group. In the rs910079 C-allele carrier group, the BUP16 group had higher TES (46 to 50%) than did the PLB group (33 to 36%). No difference was observed in participants with the rs1022563 GG genotype or the rs910079 TT genotype groups between the BUP16 and PLB groups. These results suggest that genetic variants of PDYN peptides may identify patients who are best suited to treatment with XR-NTX plus buprenorphine for cocaine addiction pharmacotherapy. CONCLUSIONS: These results suggest that genetic variants of PDYN peptides may identify patients who are best suited to treatment with XR-NTX plus buprenorphine for cocaine addiction pharmacotherapy.

Financial Support: National Drug Abuse Treatment Clinical Trials Network, NIH/NIDA DA020024 (RW), NIH/NIDA 5 P50 DA018197-05 (TK), DA13045; DA13035; DA13046, DA015815, HHSN271200900034C / N01DA-9-2217, HHSN271201200017C / N01DA-12-2229, HHSN271201400028C / N01DA-14-2237, Reckitt Benckiser Pharmaceuticals, Alkermes Pharmaceuticals and D.A.N. through MD Anderson's Cancer Center Support Grant DA026120 NIH/NIDA DA026120, and the Toomim Family Fund. Alkermes donated the medications for the parent CURB study.

First Name: David

Last Name: Nielsen

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Baylor College of Medicine

ID: 109
Zero-inflated Poisson growth curve modeling of substance use among young sexual minority men from ages 18 through 21: The P18 Cohort Study

Danielle Ompad, New York University, College of Public Health

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Epidemiology

Abstract: Aims: To examine longitudinal drug use patterns among 600 emerging adult sexual minority men (SMM) and determine whether sociodemographics, socioeconomic status (SES), and minority stressors and supports predict the growth in substance use over time between ages 18 and 21. Methods: Emerging adult SMM aged 18-19 were enrolled in prospective cohort study in 2009 and surveyed about substance use semi-annually through 2013 (i.e., up to 7 study visits). As informed by a theory of syndemics, determinants of substance use included baseline sociodemographics, perceived familial SES, internalized homonegativity, personal and public gay-related stigma, and gay community affinity. Zero-inflated Poisson (ZIP) growth models were fit for the three most prevalent outcomes: any alcohol use, alcohol intoxication, and marijuana use. Results: Between the ages of 18 and 21 (i.e., across emerging adulthood), there are few appreciable changes in the prevalence of alcohol use, alcohol intoxication, and marijuana use. Among those who used alcohol, the number of alcohol days in the past 30 days decreases but there are no significant changes in the number of alcohol intoxication and marijuana days over time after controlling for sociodemographic and minority stressors and supports. Race/ethnicity, SES, public and personal gay stigma, and gay community affinity predicted substance use. Conclusions: This research suggests that alcohol and marijuana use are prevalent and relatively stable among SMM in NYC across emerging adulthood. Racial/ethnic and socioeconomic disparities in the growth of alcohol and marijuana have implications for the targeting of prevention and harm reduction programming. The relevance of minority stressors and supports for the growth of substance use across time can help with the development and/or tailoring of interventions for this community.

Financial Support: The study was funded by the National Institute on Drug Abuse (NIDA; 1R01DA025537). DCO was supported by the Center for Drug Use and HIV Research (CDUHR - P30 DA011041).

First Name: Danielle

Last Name: Ompad

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: New York University, College of Public Health

Contact Title: Epidemiologist

ID: 110
Anxiety sensitivity moderates the association of relationship status with cigarette smoking heaviness and dependence

Casey Guillot, University of North Texas

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Dependence

Abstract: Aims: Anxiety sensitivity—fear of anxiety symptoms—has been tied to substance use in a number of mixed or mostly White samples. Theoretically, anxiety sensitivity increases substance use motivation primarily because it intensifies negative affect, with this intensification leading to enhanced motivation to use substances for the purpose of coping. To the best of our knowledge, however, no prior study has examined if anxiety sensitivity is associated with substance-related variables in an entirely African-American sample. Methods: In this cross-sectional design, African-American non-treatment-seeking smokers (N = 683; 37.5% female; M age 50 years; 10+ cigarettes per day) completed self-report measures of demographic characteristics, anxiety sensitivity, dysphoria symptoms, cigarettes smoked per day, quit difficulty and withdrawal symptom severity during their most recent attempt to quit smoking, severity of tobacco dependence, barriers to smoking cessation, overall smoking motives, alcohol use and problems, and other substance use problems. Results: Controlling for education level and dysphoria symptoms, anxiety sensitivity was associated with cigarettes smoked per day ($\beta = .08$, $p = .039$), difficulty in attempting to quit smoking (OR = 1.28, $p = .020$), intensity of tobacco withdrawal symptoms ($\beta = .10$, $p = .015$), severity of tobacco dependence ($\beta = .09$, $p = .021$), barriers to smoking cessation ($\beta = .09$, $p = .041$), overall smoking motives ($\beta = .17$, $p < .001$), hazardous drinking ($\beta = .08$, $p = .048$), alcohol problems ($\beta = .11$, $p = .004$), and other substance use problems ($\beta = .17$, $p < .001$). Conclusions: Current findings are largely consistent with prior studies that have examined anxiety sensitivity in relation to smoking variables, alcohol use and problems, and other substance use problems in mixed or mostly White samples. Therefore, current findings suggest that anxiety sensitivity may increase motivation to use substances in African Americans similar to other groups.

Financial Support: ACS Grant RSG-13-163-01

First Name: Casey

Last Name: Guillot

Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: University of North Texas

Contact Title: Assistant Professor

ID: 111
Effectiveness of an addiction treatment program integrated in an HIV clinic: Results of a 4-year program in Ho Chi Minh, Vietnam

Cecile Denis, University of Pennsylvania

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: AIDS/Immune

Abstract: Aim: To evaluate the 12-month efficacy of an addiction treatment program (methadone or buprenorphine/naloxone, and CBT-based counseling) established within an HIV clinic (Go Vap clinic, Ho Chi Minh City, Vietnam) and to compare addiction-related and HIV-related outcomes according to HIV status. Methods: Opioid use disordered participants were followed for 12 months and evaluated on treatment retention, treatment adherence, substance use and HIV-related outcomes including viral load and CD4 counts. Results: The sample consisted of 448 participants (96.9% males, 32.6 y.o.), 153 HIV-positive (34.2%). HIV-positive participants were older, started heroin earlier, have used heroin for a longer period of time, have received more previous treatment and were more often co-infected with hepatitis C than HIV-negative individuals. The retention rate on opiate maintenance treatment (OMT) was 75.4% at 12 months with no difference according to the HIV status ($c2 = 0.05$, $p=0.82$). There was a significant decrease of heroin use regardless of the HIV status ($F(12,240)=42.2$, $p < 0 .0001$), slightly delayed for HIV-positive individuals ($F(12,240) = 4.52$, $p< 0.0001$). There was no change over time in other substance use, without difference according to HIV status. The percentage of HIV-positive individuals receiving antiretroviral therapy (ART) increased from 81.7% at baseline to 96.1% at 12 months, with ART adherence increasing from 79.0% at baseline to 98.3% at 12 months, leading to 90.0% of HIV-positive with a suppressed viral load at 12 months (vs. 53.7% at baseline). A sustained viral load suppression was not associated with the type of OMT neither the type of ART, however it was linked to a better ART adherence (Pearson=7.18, $p=0.007$) and the decrease of heroin use over the 12 months ($F(12,32)= 2.20$, $p=0.03$). Conclusion: Providing addiction treatment within an HIV care setting showed significant impact on substance use outcomes as well as HIV detection, engagement in HIV care and viral suppression at 12 months.

Financial Support: NIDA R01- DA033671

First Name: Cecile

Last Name: Denis

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: University of Pennsylvania

ID: 112
Anxiety sensitivity as a predicator of the acute subjective effects of smoking in African-Americans during non-abstinence

Casey Guillot, University of North Texas

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Behavior

Abstract: Aims: Anxiety sensitivity (AS)—fear of anxiety symptoms—has been associated with indicators of smoking motivation and maintenance. Though most prior experimental work has associated AS with processes tied to negative reinforcement (e.g., greater tobacco withdrawal symptoms and smoking-induced negative affect reduction), a few experimental studies have associated AS with processes tied to positive reinforcement (e.g., greater post-cigarette reward and smoking-induced positive affect enhancement). To our knowledge, however, no prior published study has examined if AS predicts the acute subjective effects of smoking in African Americans. Methods: African-American non-treatment-seeking smokers (N = 590; 37.2% female; M age 50.2 years; 10+ cigarettes per day) completed the Anxiety Sensitivity Index during a baseline session. Participants then were asked to smoke normally before a subsequent experimental session. At the start of the experimental session, each participant smoked a single cigarette of their preferred brand in the laboratory. Self-report measures of affect and cigarette craving were completed before and after smoking, and post-cigarette subjective effect ratings were also provided. Linear regressions controlled for baseline dysphoria symptoms, education level, cigarettes per day, and severity of tobacco dependence (and for repeated measures only, corresponding pre-cigarette scores). Results: Lower AS predicted greater smoking-induced reductions in negative affect ($\beta = .09$, $p = .017$) and urge to smoke to avoid negative affect ($\beta = .08$, $p = .046$), whereas higher AS predicted greater post-cigarette psychological reward ($\beta = .12$, $p = .006$). AS did not predict the degree of smoking–induced positive affect or post-cigarette smoking satisfaction, aversion, or enjoyment of respiratory sensations. Conclusions: Current findings suggest that during non-abstinence (not involving a stressor) in African Americans, smoking effects are related more to negative reinforcement in low-AS individuals, while smoking effects are related more to positive reinforcement in high-AS individuals.

Financial Support: ACS Grant RSG-13-163-01 and NIDA K01- DA040043

First Name: Casey

Last Name: Guillot

Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: University of North Texas

Contact Title: Assistant Professor

ID: 113
Impact of three weeks of sustained abstinence on cognition in young adult cannabis users

Alexander Wallace, University of Wisconsin-Milwaukee

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Other

Abstract: Aims: Studies examining cognitive recovery with abstinence from cannabis have had mixed results (Ganzer et al., 2016; Hanson et al., 2010). Here we investigate whether three weeks of abstinence results in cognitive recovery in cannabis using adolescents and young adults. Methods: Participants included 80 youth (39 CU, 41 controls) aged 16-26 years old who were balanced for gender (55%M) and ethnicity (predominately Caucasian, 66%). Exclusion criteria included comorbid Axis-I disorders, major medical/neurological disorders, prenatal medical issues, prenatal alcohol/illicit drug exposure, or excessive (>20 times) other lifetime drug use. Participants were screened for cannabis abstinence and underwent neuropsychological testing across a three-week period. Participants completed the Ruff 2&7, WAIS-III Letter-Number Sequencing (LNS), Stroop Test, and the Hopkins Verbal Learning Task (HVLT-R). Repeated measures were run to examine the interaction between time and group across all three testing sessions while controlling for baseline past year alcohol and nicotine use. Results: At the baseline session, CU had significantly poorer verbal total recall (p=.03) and marginally poorer verbal delayed recall (p=.09). A significant interaction between CU and time points was observed for Ruff 2&7 total accuracy (p=.02); CU performed more poorly than controls at baseline, and this was significantly recovered by time-point three. Conclusion: Cannabis users demonstrated impaired verbal memory and sustained attention compared to controls at baseline. Cannabis users demonstrated recovery in sustained attention with abstinence over the three-week period. This provides further evidence of recovery of function with sustained abstinence from cannabis in youth.

Financial Support: Supported By: R01 DA030354, NIDA; PI: Lisdahl, K.M

First Name: Alexander

Last Name: Wallace

Company Affiliation: University of Wisconsin-Milwaukee

ID: 114
Flavor additives increase motivation for nicotine and nicotine-evoked dopamine release in rats

Matthew Palmatier, East Tennessee State University

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Nicotine/Tobacco

Topic: Neurobiology

Abstract: AIM Nicotine is a weak primary reinforcer, but enhances responding for non-drug reinforcers including conditioned reinforcers (CRs). Flavor additives in tobacco products are CRs. We investigated whether flavor CRs could promote nicotine self-administration and dopamine (DA) release in the nucleus accumbens (NAc). METHODS Rats were randomly assigned to one of two groups, CR (n=7) or Neutral (n=6). For flavor conditioning LRE was paired with sucrose (20% w/v) in the CR group, but unsweetened in the neutral group. After flavor conditioning rats were instrumented for IV self-administration. Licks at two sipper tubes led to the delivery of oral water or oral LRE paired with IV nicotine (20 ug/kg/infusion). All rats were tested under a progressive ratio (PR) schedule to measure motivation and were subsequently instrumented with intracranial cannula in the NAc. To measure DA release, dialysis samples were collected across 6 hours of testing. Sample collection included the following phases: 60 min washout, 0) 60 min baseline, 1) 60 min access to LRE, 2) 60 min access to LRE with IV nicotine infusions (experimenter administered), and 3-4) 120 min post-nicotine sample collection (with LRE). Two rats with non-patent catheters were excluded from the CR group. RESULTS The CR group showed greater motivation under the PR [$t(11)=3.1$, $p=0.01$]. The CR group also showed increased extracellular DA evoked by the flavor alone [$F(1,18)=12.9$, $p < 0 .01$]. IV nicotine infusions further enhanced extracellular DA as indicated by a Group x Phase interaction [$F(3,27)=6.5$, $p < 0 .001$], extracellular DA levels in the CR group significantly increased in phases 3 and 4 (post-nicotine infusions) relative to phase 1 (LRE alone) [$ts(5)\geq 4.2$, $ps\leq 0.05$]. CONCLUSION These findings indicate the interaction between NIC and flavor CRs can result in high motivation and enhancement in DA release when the CRs are self-administered with NIC.

Financial Support: DA038843

First Name: Matthew

Last Name: Palmatier

Company Affiliation: East Tennessee State University

ID: 115
Medicaid expansion and treatment for opioid use disorders in Oregon

Dennis McCarty, Oregon Health & Science University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: AIM. The analysis examined utilization of specialty addiction treatment services and agonist therapy for treatment of opioid use disorders following Medicaid expansion in Oregon. Methods. Descriptive analysis examined utilization of care before (January 1, 2013 – December 31, 2013) and after Medicaid expansion (January 1, 2014 – June 30, 2015). All comparisons were significant because of the large sample size. Results. Medicaid expansion was associated with a substantial increase in adult membership in the Oregon health plan (2013 = 209,782; 2014 = 531,627) and an increase in members with an OUD diagnosis (2013 = 7,482; 2014 = 14,256). Use of specialty care doubled from 3,260 admissions (2013) to 6,600 (2014) with similar two-fold increases for utilization of methadone (2013 = 2,995; 2014 = 4,602) and buprenorphine (2013 = 696; 2014 = 1,588) opioid agonist therapies. A more complicated picture emerges when percent utilization was examined. The percent of members with an OUD diagnosis who entered specialty care increased from 43.6% (2013) to 46.3% (2014) but the percent receiving opioid agonist therapy declined from 49.3% to 43.4%%. The decline appeared to be associated with increased use of inpatient rehabilitation (10.0% to 11.1%%) and detoxification services (5.4% to 8.6%). Conclusion. Medicaid enrollment and use of psycho-social therapies and pharmacotherapy increased following Medicaid expansion. The expansion population, however, was more likely to use detoxification and acute inpatient care and less likely to use pharmacotherapy. Differences between the Medicaid expansion and traditional Medicaid populations may help to explain the changes in care utilization (e.g., younger, fewer women, more minorities).Medicaid expansion and treatment for opioid use disorders in Oregon Aim. The analysis examined utilization of specialty addiction treatment services and agonist therapy for treatment of opioid use disorders following Medicaid expansion in Oregon. Method. Descriptive

Financial Support: An award from the National Institute on Drug Abuse (R33 DA035640) supported the analysis.

First Name: Dennis

Last Name: McCarty

Degrees: MA MD Ph.D etc:: PH. D.

Company Affiliation: Oregon Health & Science University

ID: 116
Is heavy cannabis use associated with reduced motivation among adolescents?

Ileana Pacheco-Colon, Florida International University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Adolescent

Abstract: AIM: Reduced motivation is often noted as a consequence of cannabis use (CU). Yet, prior studies report mixed findings and differ on whether level of CU or the presence of cannabis use disorder (CUD) is examined in relation to motivation. This study examines differences in motivation between light and heavy adolescent cannabis users. Results are compared when participants are grouped by CU frequency or presence of a CUD. METHODS: Participants were 136 adolescent cannabis users (ages 16-19) endorsing at least some CU in the past 6 months. Motivation was measured through the Apathy Evaluation Scale (AES), Motivation and Engagement Scale (MES), and California Verbal Learning Task-II (CVLT-II) Forced Choice Trial. Participants were divided into quartiles based on their past 6-month CU frequency, with analyses comparing the highest (n = 34; near daily use) and lowest (n = 34; about 1 use per month) quartiles to maximize potential for between-group differences at extremes of CU. Additionally, the Structured Clinical Interview for DSM-IV was used to group participants into those who met criteria for current CUD (n = 46), and those who did not (n = 90). Bootstrapped regressions were used to examine between-group differences in each motivation variable after covarying for frequency of alcohol and nicotine use. RESULTS: After controlling for covariates, there were no significant differences in AES score, MES scores, or CVLT-II Forced Choice Trial Scores between light and heavy adolescent cannabis users, ps CONCLUSION: Our findings do not support a link between reduced motivation and either heavy CU or the presence of a CUD. Future studies should longitudinally examine the effects of varying levels of CU on motivation among adolescents.

Financial Support: U01 DA041156 (PI: Gonzalez) R01 DA031176 (PI: Gonzalez) FIU Presidential Fellowship (recipient: Pacheco-Colón)

First Name: Ileana

Last Name: Pacheco-Colon

Degrees: MA MD Ph.D etc:: MS

Company Affiliation: Florida International University

ID: 117
Overdose experiences increase risk for injection drug use following incarceration in rural women who use opioids

Erika Pike, University of Kentucky

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Behavior

Abstract: Aim: Individuals who report injection drug use are at a heightened risk for experiencing an overdose. Overdoses are also more likely to occur during periods following forced abstinence (e.g., incarceration). This analysis was designed to determine if incarcerated, opioid-using, rural women who survived and/or witnessed an overdose were at increased risk for engaging in injection drug use following release. Method: Rural women who use opioids (n = 394) were recruited while in jail and follow-ups were conducted at 3-, 6-, and 12-months post-release. This secondary data analysis investigated whether experiencing and/or witnessing an overdose prior to incarceration was associated with injection drug use following release. Results: After controlling for baseline injection use, women who both survived an overdose and witnessed someone overdose prior to incarceration were at increased risk to inject drugs during follow-up (OR = 4.84, $p < 0.001$). Women who reported only surviving an overdose or witnessing someone overdose, but not both, also were at an increased risk for injection drug use during follow-up (OR = 3.54, $p < 0.01$; OR = 3.26, $p < 0.001$, respectively). Odds of injection drug use were higher at earlier follow-ups compared to later ($p < 0.001$). Conclusion: Experiencing a non-fatal overdose and witnessing an overdose prior to incarceration were associated with an increased risk for injection drug use following release. Injection drug use following a period of forced abstinence has been associated with an increased risk for overdose. These findings highlight the need to identify individuals most at risk for injection drug use following release from incarceration to be able to target interventions to reduce risk behaviors.

Financial Support: NIDA R01DA033866; NIDA T32DA035200

First Name: Erika

Last Name: Pike

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: University of Kentucky

ID: 118
Do recreational marijuana laws impact state-level alcohol and tobacco use?

Christine Mauro, Columbia University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Policy

Abstract: Aim. Little is known about changes in alcohol and tobacco use following enactment of recreational marijuana laws (RML). We examined the impact of RML enactment in Washington and Colorado in 2012 by examining changes in the prevalence of past-month alcohol and tobacco use from 2010-2011 to 2014-2015. Methods. We obtained two-year prevalence estimates of past-month alcohol use and past-month tobacco product use from the National Survey on Drug Use and Health, a cross-sectional survey of the noninstitutionalized US population. For each age group (12-17, 18-25, 26+) and outcome, we computed difference-in-difference estimates comparing the change in Colorado and Washington from 2010-2011 to 2014-2015 to changes in the total U.S. We obtained confidence intervals for these estimates from 10,000 simulated datasets constructed based on the standard errors of the extracted prevalence estimates. Results. In the total U.S., from 2010-11 to 2014-15, past-month alcohol use decreased significantly among those aged 12-17 (13.5% to 10.6%) and 18-25 (61.0% to 59.0%) and increased significantly among those 26+ (55.0% to 56.0%). There was no differential change in past-month alcohol use observed in Colorado or Washington for any age group following RML enactment. Past-month tobacco use decreased significantly for all age groups across the U.S. during this time (12-17: 10.3% to 6.5%; 18-25: 40.2% to 34.0%; 26+ 26.8% to 25.1%). This decrease was significantly larger in Washington (44.3% to 31.0%) than in the U.S. only among 18-25 year olds. We observed no differential change in tobacco use for other age groups or for Colorado. Conclusion. Preliminary evidence suggests that RML have had little impact on alcohol and tobacco use for both Colorado and Washington. The significantly larger decrease in tobacco use in 18-25 year olds in Washington after passage of RML merits further attention; research should also assess changes in tobacco policies during this period.

Financial Support: Supported by NIH grant 1R01DA037866 (Martins)

First Name: Christine

Last Name: Mauro

Degrees: MA MD Ph.D etc:: Ph.D

Company Affiliation: Columbia University

ID: 119
Neuropharmacology of n-(2-methoxybenzyl)-2,5-dimethoxyphenethylamine (NBOMe) hallucinogens and their 2c counterparts in male rats

Michael Baumann, NIDA Intramural Research Program

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Club/Designer Drugs

Topic: Mechanisms of Action

Abstract: Aim: 2,5-Dimethoxyphenethylamines (2C compounds) are 5-HT2A/2C receptor agonists that induce hallucinogenic effects. N-methoxybenzylation of 2C compounds increases their affinity for 5-HT2A receptors, and two such analogs, 2-(4-chloro-2,5-dimethoxyphenyl)-N-[(2-methoxyphenyl)methyl]ethanamine (25C-NBOMe) and 2-(4-iodo-2,5-dimethoxyphenyl)-N-[(2-methoxyphenyl)methyl]ethanamine (25I-NBOMe), have emerged in recreational drug markets. Here we investigated the pharmacology of 25C- and 25I-NBOMe in rats, as compared to their 2C analogs and the 5-HT2A/2C agonist 1-(4-iodo-2,5-dimethoxyphenyl)propan-2-amine (DOI). Methods: Compounds were tested in vitro using 5-HT2A receptor binding assays in rat brain tissue and calcium mobilization assays in cells expressing 5-HT2A receptors. For in vivo experiments, male Sprague-Dawley rats received subcutaneous (sc) injections of 25C-NBOMe (0.01-0.3 mg/kg), 25I-NBOMe (0.01-0.3 mg/kg), 2-(4-chloro-2,5-dimethoxyphenyl)ethan-1-amine (2C-C) (0.1-3.0 mg/kg), 2-(4-iodo-2,5-dimethoxyphenyl)ethan-1-amine (2C-I) (0.1-3.0 mg/kg) or DOI (0.03-1.0 mg/kg), and 5-HT2A-mediated behaviors were assessed. Results: NBOMe compounds displayed much higher affinity for 5-HT2A receptors (IC50 range=4-9 nM) when compared to their 2C counterparts (IC50 range=125-307 nM), but NBOMes were weaker in functional assays. 25C- and 25I-NBOMe were more potent at inducing wet dog shakes and back muscle contractions (i.e., skin jerks) (ED50 range=0.01-0.06 mg/kg, sc) when compared to 2C-C and 2C-I (ED50 range=0.17-0.69 mg/kg, sc). Pretreatment with the selective 5-HT2A antagonist (R)-(+)-α-(2,3-dimethoxyphenyl)-1-[2-(4-fluorophenyl)ethyl]-4-piperidinemethanol (M100907) reversed behaviors produced by all agonists. Interestingly, binding affinities at the 5-HT2A receptor were significantly correlated with potencies to induce skin jerks ($r=0.984$, $p < 0 .003$) but not wet dog shakes ($r=0.306$, $p < 0 .606$). Conclusion: Our results show that NBOMes are potent 5-HT2A receptor agonists in rats, similar to their effects in mice, and consistent with their hallucinogenic effects in human users. The data further suggest that skin jerks are a reliable in vivo read-out of 5-HT2A receptor activation in rats.

Financial Support: Research was sponsored by the Intramural Research Program of the National Institute on Drug Abuse, National Institutes of Health, USA

First Name: Michael

Last Name: Baumann

Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: NIDA Intramural Research Program

ID: 120
Treatment completion outcomes for opioid users: Are there racial and ethnic disparities across large us metropolitan areas?

Jerry Stahler, Temple University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Ethnic Differences

Abstract: AIM: To examine racial/ethnic disparities in treatment completion (TxC) among opioid users across large metropolitan areas (MSAs) in the US given the large concentrations of minority groups in urban areas. We hypothesize that Black and Hispanic opioid users will have a lower likelihood of TxC vs. whites; and that there will be significant variations in disparities across MSAs. METHODS: Data on opioid use disorder discharge cases (n=34,380) were extracted from the 2014 TEDS-D (Treatment Episode Dataset-Discharge) dataset for MSAs with populations greater than 1,000,000 (n=42). Logistic regression modeling was used to estimate the effect of race/ethnicity on the probability of TxC across all MSAs and then for each MSA. RESULTS: Across all MSAs TxC rates for blacks and Hispanics were lower compared to white opioid users. However, at the disaggregated level of individual MSAs, disparities in treatment outcomes were found in only three of the 42 MSAs. When analyses were repeated across all MSAs excluding NYC and Buffalo, there were no significant disparities in treatment completion. Further analyses suggested that disparities in NYC resulted from whites in NYC having higher TxC rates than whites in other MSAs. This was probably due to NYC whites having higher percentages of characteristics associated with better outcomes (eg., higher SES, stable housing, etc.). CONCLUSION: This is the first study to examine racial/ethnic disparities in treatment completion for opioid substance use disorder across large metropolitan areas in the US. The findings suggest that while there were lower rates of TxC for blacks and Hispanics compared to whites across the total sample of 42 MSAs, this was primarily driven by disparities in the NYC MSA. The results underscore the importance of disaggregating national data when examining addiction treatment outcome disparities given the importance of geographic variation in client characteristics, prevalence rates, and treatment access and availability.

Financial Support: None

First Name: Jerry

Last Name: Stahler

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Temple University

ID: 121
Double dissociation of HIV and SUD effects on tasks dependent on striatal integrity

Eileen Martin, Rush University Medical Center

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: AIDS/Immune

Abstract: AIM: Substance use is common among individuals infected with HIV, yet whether neurocognitive effects of HIV can be distinguished from more nonspecific effects of drug dependence and associated comorbidities is not known. HIV affects dorsal neostriatal systems relatively more than drug dependence, which typically engages ventral/limbic striatal processing; we reasoned that HIV+ individuals would perform more poorly on tasks critically dependent on neostriatal integrity than HIV- groups, regardless of drug history. METHODS: We administered two theory driven cognitive neuropsychological tasks to 55 HIV- and 22 HIV+ men and women with no history of drug dependence and well-matched on demographic characteristics; and 303 HIV- and 134 HIV+ individuals with lifetime DSM-IV-diagnosed cocaine or opioid dependence. The drug using groups were verified abstinent and well matched on demographics, substance use, and potentially confounding comorbid disorders including PTSD, depression, ADHD, and antisocial traits. Current and nadir CD4 counts and viral suppression did not differ significantly between HIV+ drug users and non-users. All subjects performed a probability learning task known to engage neostriatal processing; and a delay discounting task, an index of impulsivity typically increased among drug users compared with non-users. RESULTS: HIV Serostatus x Drug History analyses of covariance controlling for education revealed a significant main effect (poorer performance) for Drug Use but not HIV Serostatus on delay discounting, p d = -.29; and a significant main effect for HIV Serostatus but not Drug History for the probability learning task, p d = .31. CONCLUSION: These findings support the idea that carefully selected cognitive neuropsychological tasks may have the capacity to detect neurocognitive effects of HIV not attributable solely to drug dependence; however, structural and functional neuroimaging studies with more selective neurocognitive probes will be critical for mapping underlying brain systems affected by HIV and substance use disorders.

Financial Support: National Institute on Drug Abuse

First Name: Eileen

Last Name: Martin

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Rush University Medical Center

ID: 122
Computer-facilitated 5A's for tobacco use disorders: Using technology to improve screening and brief interventions

Jason Satterfield, University of California San Francisco

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Treatment

Abstract: Background: Clinical practice guidelines recommend that primary care providers (PCPs) deliver the 5A's (ask, advise, assess, assist, and arrange) at every clinical encounter for the treatment of tobacco use disorders. Unfortunately, PCP adherence to the steps remains low. Innovative service delivery models are needed to improve 5A's adherence. Aim: To evaluate effectiveness of a computer-facilitated 5A's (CF-5A's) intervention to improve PCP 5A's adherence. Primary outcomes include adherence to each "A" and to the 5A's as a whole. Methods: PCPs from 3 clinics were randomized into the CF-5A's intervention or to usual care (UC). Adult patients who smoke were recruited in waiting rooms and assigned to their provider's condition. Intervention patients completed the CF5A's and two tailored clinical summaries were generated – one for the provider and one for the patient. UC patients completed an eligibility survey and consent only. Within 72 hours of the appointment, patients completed a post-visit survey about their receipt of the 5A's during their PCP encounter. Patients could participate up to three times within the yearlong study period. Results: N=221 providers saw n=961 patients (n=412 intervention; n=549 UC) in n=1,340 total encounters with n=1,011 completed post surveys (75.4% response). After accounting for 4-level nesting effects, GEE models showed intervention PCPs 32% more likely to "Assess" (OR 1.32; 95% CI, 1.01-1.72), 45% more likely to "Assist" (OR 1.45; 95% CI, 1.08-1.93), and 72% more likely to "Arrange" in the first visit only (OR 1.72; 95% CI, 1.23-2.40), and 104% more likely to complete all 5A's during the first visit (OR 2.04; 95% CI, 1.35-3.07). Conclusion: A computer-facilitated 5A's delivery model was effective in improving the fidelity of provider-delivered 5A's to diverse PC patients. This relatively low cost, time-saving intervention has great potential for smoking cessation and other health behaviors.

Financial Support: NIH/NIDA grant R01DA034253

First Name: Jason

Last Name: Satterfield

Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: University of California San Francisco

ID: 123
The case for providing opioid agonist therapy in the hospital setting

Kelsey Priest, Oregon Health & Science University

Abstract Category: Literature Review

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: Aim: Opioid use disorder (OUD)-related hospital admissions are increasing, overwhelming the acute care delivery system, and disproportionately burdening public payers. The current opioid epidemic has increased acute care delivery system utilization by persons with OUD; thus, policymakers, researchers, hospital leaders, and health care professionals seek to understand how to enhance OUD treatment in the hospital setting. Methods: A review of a limited literature describes the need for hospital opioid agonist therapy delivery from three perspectives: financial, patient health, and care quality. Results: The costs of OUD-related hospital admissions are increasing and are more expensive than non-OUD related admissions. In-hospital mortality during an OUD-related hospitalization is a relatively rare event, but the use of specific opioids (i.e., heroin versus prescription opioid) and a co-infection increase the risk of death. What these data do not capture is the mortality risk to patients withdrawn from opioids or opioid agonist therapy upon discharge from the hospital. From a care quality perspective, the literature characterizing the care during and after admission, although limited is concerning. Patients with OUD leave the hospital against medical advice at a frequency much higher than the general hospitalized population. Even for patients with OUD-related sentinel admissions (i.e., overdose) the data suggest three signs of poor quality care: 1) patients with OUD were unlikely to receive evidence-based agonist therapy during the admission; 2) patients were unlikely to receive agonist therapy post-discharge, and this may be worse for Medicaid recipients; and 3) patients were likely to initiate or to continue to receive analgesic opioids or benzodiazepines post-discharge. Conclusion: Hospitals must improve in-hospital delivery of opioid agonist therapy and become part of the contemporary OUD treatment pathway.

Financial Support: An award from the National Institute on Drug Abuse (F30 DA044700) supported the preparation of the literature review.

First Name: Kelsey

Last Name: Priest

Degrees: MA MD Ph.D etc:: MPH

Company Affiliation: Oregon Health & Science University

ID: 125
Increased mean diffusivity is associated with greater past month cannabis use in emerging adults, but not alcohol or same-day alcohol and cannabis use

Natasha Wade, University of Wisconsin-Milwaukee

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Imaging

Abstract: Aim: Growing evidence suggests alcohol and cannabis use independently alter neural structure and functioning, particularly during sensitive developmental time periods (e.g., emerging adulthood). However, few studies have investigated the effects of same-day use of these two substances, despite preliminary evidence of unique acute cognitive and psychopharmacological changes due to using cannabis and alcohol together. Here, white matter (WM) integrity was investigated in relation to alcohol, cannabis, and same-day alcohol and cannabis co-use, hypothesizing that same-day co-use would have an additive negative effect on WM above and beyond that of alcohol or cannabis alone. Method: Data from the IDEAA Consortium assessed WM as measured by FreeSurfer's TRACULA in emerging adults (n=192; 16-27 years old). Timeline Followback calculated past month cannabis use, alcohol use, and same-day co-use. Multiple regressions investigated WM by past month cannabis, alcohol, and same-day co-use, controlling for covariates (i.e., site, biological sex). Correction for multiple comparisons was conducted using the False Discovery Rate method. Results: Correcting for multiple comparisons, cannabis use was significantly related to increased mean diffusivity in 12 fronto-limbic and fronto-parietal tracts (p
Financial Support: The IDEAA consortium was supported by NIDA (R01 DA032646, PI: Gruber; R01 DA030354, PI: Lisdahl). Dr. Gruber's work was supported by DA032646, DA016695, DA021241. Dr. Tapert's work was supported by R01 AA03419, P20 DA024194, and R01 DA021182. Dr. Filbey's work was supported by R01 DA042490, R01 DA030344, R01 AA023658, and the Bert Moore Chair in BrainHealth. Dr. Lisdahl's work was supported by R01 DA030354.

First Name: Natasha

Last Name: Wade

Degrees: MA MD Ph.D etc:: M.S.

Company Affiliation: University of Wisconsin-Milwaukee

ID: 126
Anti-cocaine and analgesic properties of MP1104, a mixed kappa & delta opioid receptor agonist in rats

Diana Atigari, Victoria University of Wellington

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Opiates/Opioids

Topic: Behavior

Abstract: AIM: Development of effective treatment for psychostimulant abuse and non-addictive pain therapies are urgently needed. Kappa-opioid receptor (KOPr) activation reduces drug-seeking behaviour in preclinical models of drug use and also attenuates pain and inflammation. Our aim was to evaluate the anti-cocaine and analgesic effects of MP1104, a novel dual acting KOPr and delta-opioid receptor (DOPr) agonist in rats and investigate the side-effects including sedation, aversion, anxiety and depression. METHODS: Male Sprague-Dawley rats (n=210) were used to investigate the anti-cocaine effects of MP1104 in drug self-administration model. The analgesic effects were measured using the hot-water tail-withdrawal assay. Sedation, anxiety, aversion and pro-depressive side-effects were evaluated using spontaneous locomotor activity, elevated plus maze, conditioned place aversion and forced swim tests respectively. RESULTS: In rats trained to self-administer cocaine, MP1104 reduced cocaine prime reinstatement of drug-seeking behaviour at doses of 0.3 mg/kg (p CONCLUSION: MP1104 has potential for development as a long-acting analgesic without rewarding, aversive, pro-depressive or anxiogenic side effects in rats.

Financial Support: Health Research Council of New Zealand. Wellington Medical Research Foundation.

First Name: Diana

Last Name: Atigari

Degrees: MA MD Ph.D etc:: Masters in Pharmacology

Company Affiliation: Victoria University of Wellington

ID: 127
Item Response Theory analyses of DSM-5 substance criteria: Comparison of active substance users seeking treatment and those in harm reduction settings

Marc Auriacombe, Université de Bordeaux

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Mechanisms of Action

Abstract: Aim: To compare item response theory of DSM-5 substance criteria between active substance users seeking support for safer use in harm reduction settings and those seeking treatment in outpatient clinics. Methods: Patients of outpatient addiction treatment programs and substance users in harm reduction settings in Bordeaux, France were assessed with the ASI and DSM-5 criteria for Substance Use Disorders. A 2-parameter logistic item response theory (IRT) model was conducted and ranked criteria by their estimated severity. Similarity of criteria severity ranking between the two samples was quantified with Spearman correlations. Results: The sample consisted in 1189 treatment seekers (68% males, mean age 38,7 years (SD=11)) and 93 active users in harm reduction settings (74% males, mean age 34,4 years (SD=8). Severity rankings of the criteria were not identical across the two samples, but correlations were significant for cocaine ($r = 0.72$, $p= .013$), tobacco ($r = 0.79$, $p=.004$), cannabis ($r = 0.72$, $p= .013$) and not significant but highly correlated for alcohol ($r = 0.57$) and opiates ($r = 0.56$). Conclusion: The correlations of severity rankings of DSM-5 SUD criteria indicate that the criteria have similar patterns of severity between treatment seekers and users in harm reduction settings.

Financial Support: French Government Addiction Agency MILDECA. ADDICTAQUI. Cosinus.

First Name: Marc

Last Name: Auriacombe

Degrees: MA MD Ph.D etc:: M.D., M.Sc.

Company Affiliation: Université de Bordeaux

ID: 128
Addiction-related characteristics of substances users in harm reduction settings: A systematic review

Marc Auriacombe, Université de Bordeaux

Abstract Category: Literature Review

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Other

Abstract: Aim: To assess the prevalence of addictive disorders and the frequency and intensity of craving in active substance users seeking support for safer use in harm reduction settings. Methods: Systematic review performed via Medline database up to November 2017 using the keyword algorithm (("Supervised" OR "safer") AND ("injection" OR "injecting" OR "shooting" OR "consumption")) AND ((facility OR facilities OR room OR gallery OR center OR site) OR "Needle-Exchange Programs"[Mesh]) OR Harm reduction) combined with the terms ((("Mental Disorders/diagnosis"[Mesh]) OR "Craving"[Mesh]) OR craving). Results: Twelve articles were retrieved. Three studies examined craving, 9 the diagnosis of use disorder and no study examined both. Alcohol use disorder was the most explored. 100% of subjects met criteria for opiate use disorder and prevalence of alcohol (68%) and cocaine (79%) use disorder were high. One study reported on the distribution of opiate dependence diagnostic criteria. One study assessed the intensity of craving, with 57.4% of users rating craving as moderate or severe. Two studies reported a negative impact of craving on harm reduction implementation. Conclusion: The lack of data on the prevalence and severity of substance use disorder diagnostic criteria and craving in harm reduction settings may be an important omission in efforts to enhance benefits of harm reduction programs.

Financial Support: French Government Addiction Agency MILDECA. Cosinus.

First Name: Marc

Last Name: Auriacombe

Degrees: MA MD Ph.D etc:: M.D., M.Sc.

Company Affiliation: Université de Bordeaux

ID: 129
Are discussions about substance use in health care settings associated with substance use disorder treatment use and perception of treatment need?

Pia Mauro, Columbia University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Treatment

Abstract: Aim: Most people with a substance use disorder (SUD) do not receive SUD treatment or perceive a need for treatment. We assessed whether discussions about substance use with health care providers were associated with SUD treatment use and need in the United States. Methods: We obtained public-use data from the 2013-2014 National Survey on Drug Use and Health (n=110,431), an annual nationally representative survey of non-institutionalized persons ages 12 and older. Health care encounters included any past-year emergency room, inpatient, or outpatient visits. People who reported past-year drug use (i.e., marijuana, cocaine, heroin, hallucinogens, inhalants, methamphetamine) also reported whether they discussed drug use with their provider in these visits. Weighted logistic regressions estimated the associations between drug use discussions with (a) any past-year specialty SUD treatment use, (b) perceived need for treatment among people with a SUD (substances listed above). Models were adjusted for gender, age, race/ethnicity, drug use screening, insurance, and survey year. Results: Of the 13.9% of people reporting past-year drug use, 79.2% had at least one health care encounter. Only 18.8% reported discussing their drug use with a health care provider in those encounters. Drug use discussions were positively associated with drug use screening and SUD (p-values < 0 .001), female gender, Other/Hispanic race/ethnicity, and year (p-values < 0 .05). Among people with past-year SUD, discussions with providers were associated with higher odds of specialty treatment use (adjusted odds ratio[aOR]=4.01, 95% CI=2.75-5.84), and perceived treatment need (aOR=2.36, 95% CI=1.31-4.25). Conclusion: In this cross-sectional study, drug use discussions were positively associated with SUD treatment use and perceptions of treatment need. However, most people did not discuss drug use with health care professionals, potentially indicating missed opportunities to engage people in services. Studies should assess the temporal order of associations to determine whether these discussions could increase perceived treatment need and SUD treatment utilization.

Financial Support: R01DA037866 (Martins), L30DA042436 (Mauro), T32DA031099 (Samples, PI: Hasin)

First Name: Pia

Last Name: Mauro

Degrees: MA MD Ph.D etc:: Ph.D

Company Affiliation: Columbia University

ID: 130
Chemogenetic approaches to restoring prosocial functioning in rats following opiate use

Seven Tomek, Arizona State University

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Opiates/Opioids

Topic: Behavior

Abstract: AIM. Opiate use disorder is characterized, in part, by deficits in prosocial behavior which are likely a result of opiate-induced changes in brain mechanisms mediating these behaviors, such as the anterior insular cortex (AIC). The present study was designed to investigate the role of the AIC in opiate-induced reductions in prosociality. METHODS. A rodent model of prosocial behavior has recently been developed in which a rat will open the door of a plastic restrainer to release a trapped cagemate. This "rescuing" behavior has been shown to occur in place of receiving food and when the resulting social interaction is prevented. We previously utilized this paradigm in conjunction with operant self-administration procedures, whereby after baseline rescuing behavior was established, rats were allowed 10-14 days of oral sucrose or i.v. heroin self-administration. Afterwards, rats were provided with a choice between rescuing their cagemate or self-administering their respective reinforcer. Results of this previous study showed that rats self-administering sucrose would release their cagemate, whereas rats self-administering heroin would not and chose drug reinforcement instead. In the present study, we utilized chemogenetics to examine the effects of excitatory AIC neuron activation on heroin-induced reductions in prosociality. After establishment of baseline rescuing behavior, rats received infusions of an AAV encoding a stimulatory DREADD (CaMKIIα-hM3Dq-mCherry) or control virus (CaMKIIα-GFP) into the AIC and were allowed to self-administer heroin (0.06 mg/kg i.v.) 6 hr per day for 2 weeks. Immediately prior to assessment of post self-administration rescuing behavior, animals were administered clozapine-N-oxide (CNO, 1.5 mg/kg) for DREADD activation. RESULTS. A higher proportion of rats infused with the active DREADD virus showed rescuing behavior following heroin self-administration as compared to rats infused with the control virus ($p = 0.0386$). CONCLUSION. These results suggest that chemogenetic activation of the AIC can restore heroin-induced deficits in prosocial behavior.

Financial Support: Supported by grants AA025590 and DA043172

First Name: Seven

Last Name: Tomek

Degrees: MA MD Ph.D etc:: MA

Company Affiliation: Arizona State University

ID: 131
Gender-specific association of functional PDYN 68-base pair repeats with cannabis exposure in an African-American cohort

Vadim Yuferov, The Rockefeller University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Behavior

Abstract: Aims: Cannabis use disorders (CUD) cause substantial morbidity and co-morbidity. There is evidence of gender differences in CUD, for example as greater prevalence in males versus females. The main active component of cannabis is delta 9-tetrahydrocannabinol (delta 9-THC), a CB1-r partial agonist. Preclinical studies show that genetic or pharmacological manipulation the KOR / dynorphin system modulate the effects of delta 9-THC. Methods: In this case-control study of adult African-Americans (n=476; 206 females, 270 males), we examined the association of the functional prodynorphin 68-base pair (PDYN 68 bp) promoter repeats with categorical diagnoses of cannabis dependence (DSM IV criteria), and with dimensional measures of cannabis exposure (KMSK scales). Results: The PDYN 68bp genotype (examined as short-short [SS], short-long [SL], or long-long [LL], based on the number of repeats, was not significantly associated with categorical cannabis dependence diagnoses, either in males or females. However, in males, the PDYN 68bp SS+SL genotype was associated with both 1) greater odds of any use of cannabis, and 2) earlier age of first cannabis use, compared to the LL genotype (i.e., 15 versus 16.5 years of age). Males in the SS+SL group also had greater odds of high lifetime exposure to cannabis, compared to the LL group. None of the aforementioned associations were significant in females. Conclusions: This study provides initial information on the genetic association of PDYN 68bp genotype with gender-specific patterns of exposure to cannabis.

Financial Support: Adelson Medical Research Foundation; NIH-CTSA grant to the Rockefeller University Hospital (1UL1TR001866).

First Name: Vadim

Last Name: Yuferov

Degrees: MA MD Ph.D etc:: Ph.D

Company Affiliation: The Rockefeller University

ID: 132
Usability testing of a mHealth prototype to enhance HIV, HCV, and buprenorphine treatment in primary care

Babak Tofighi, New York University School of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Technology Issues

Abstract: Aim 1. Develop a tailored mHealth prototype that supports patient-provider communication, adherence to buprenorphine, and patient self-management, based on qualitative interviews with key stakeholders [i.e., patients (n=40), physicians (n=10), and administrators (n=10)] Aim 2. Conduct usability testing of the prototype in 3 waves of inpatient detoxification program patients scheduled for follow up in primary care (n=5 per wave x 3 waves; n=15 total) using a theoretically-based approach to intervention design Methods: Qualitative interviews with key stakeholders (e.g., patients, physicians, and administrators). After identifying areas for potential optimization, a refined prototype then underwent usability testing in x3 cycles of inpatient detoxification program patients scheduled for follow up in primary care. The preliminary mHealth components were based on a basic medical management outline (i.e., patient-provider communication, buprenorphine adherence, self-management, goal of opioid abstinence, 12-step meeting and counseling participation) during induction, stabilization, and maintenance phases of buprenorphine treatment. We utilized best practices for the iterative design of the prototype, as defined by the Intervention Mapping Approach, a growing body of usability engineering literature, and systematic reviews. Results: We approached 18 patients scheduled for follow up in primary care for buprenorphine treatment and HIV and/or HCV care following completion of inpatient detoxifcation. Eleven participants consented to receiving the text message reminders and supportive content. Seven participants successfully transitioned to primary care post-discharge. Six participants responded to >80% of queries supporting induction and stabilization to buprenorphine (e.g., cravings, wtihdrawal symptoms) at 4 weeks. All six participants rated the prototype highly (i.e., 4 or 5) on a 5-point Likert Scale for ease of use, perceived usefulness, intention to use, and vicarious innovativeness. Conclusion: This ongoing study has describes a theortically-based approach to develop a patient-centered mHealth platform to optimize chronic disease management among patients with opioid use disorder, HIV, and HCV that has not previously been applied to primary care.

Financial Support: NIH: National Institute on Drug Abuse. K23 DA042140-01A1 – Development of a text messaging tool to support buprenorphine treatment in primary care. NYUMC-Clinical and Translational Science Institute. Development of a mHealth Tool to Enhance Linkage and Retention to Office-based Opioid Treatment and HIV-HCV Care among Inpatient Hospital Patients

First Name: Babak

Last Name: Tofighi

Degrees: MA MD Ph.D etc:: MD, MSc

Company Affiliation: New York University School of Medicine

ID: 134
Opportunities and challenges from a tenant-led overdose response intervention in single room occupancy hotels in Vancouver, Canada

Geoff Bardwell, University of British Columbia, BC Centre on Substance Use

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Prevention

Abstract: AIM This study examined the acceptability, feasibility, and implementation of the Tenant Overdose Response Organizer (TORO) program – a tenant-led naloxone training and distribution intervention – in privately-owned single room occupancy (SRO) hotels with high overdose rates in 2017, in Vancouver, Canada. We hypothesized that this intervention would be an effective overdose response. METHODS Semi-structured qualitative interviews were conducted with 20 tenants who had participated in a TORO training and administered naloxone in their SRO, or had overdosed in their SRO and received naloxone from another tenant. Focus groups were conducted with 15 workers who led the TORO program in their SROs. Ethnographic observation was also conducted at SROs. Interviews and focus groups were transcribed and analyzed thematically. RESULTS The TORO program demonstrated a high level of acceptability, with participants describing the urgent need for an intervention amid the frequency of overdoses in their SROs. TORO training enhanced participants' knowledge and skills, and provided a sense of recognition. While the program provided important training and engaged isolated tenants, there were structural barriers to program feasibility (e.g., lack of landlord acceptance/support) in some buildings. The TORO program was also successful in its reach and community development, although participants discussed a lack of emotional support in responding to frequent overdoses, leading to burnout and vulnerability. CONCLUSION Our findings suggest that this program was affected by social and structural environmental constraints that impacted feasibility and implementation. Despite these constraints, peer-led in-reach overdose response interventions are effective tools in addressing overdose risk in housing environments.

Financial Support: This study was supported by funding from the City of Vancouver and the US National Institutes of Health (R01DA044181).

First Name: Geoff

Last Name: Bardwell

Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: University of British Columbia, BC Centre on Substance Use

ID: 135
Hospital stay in patients with bipolar disorder, schizophrenia, and other psychotic disorders is negatively associated with synthetic cannabinoid or marijuana use

Huiqiong (Joan) Deng, University of Texas Health Science Center, McGovern Medical School

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Treatment

Abstract: Aim: Use of synthetic cannabinoid (SC) products has become popular in recent years, but data regarding their impact on hospital stay is limited. The impact of SC and cannabis use on hospital stay including hospital length of stay (LOS) and doses of antipsychotics at discharge were compared in this study. Methods: The target population was inpatients with discharge diagnoses of bipolar disorder, schizophrenia, and other psychotic disorders admitted from January 2014 to July 2015. Medical records of patients with self-reported SC use and negative urine drug screens (UDS) (SC group, N = 77), with marijuana use confirmed by UDS (MJ group, N = 248), and with no drug use confirmed by UDS (No-drug group, N = 1336) were retrospectively examined. Kruskal-Walis tests and linear regressions were used to compare LOS and dose of antipsychotics among groups. Results: LOS (SC group: 8.29 ± 4.29; MJ group: 8.02 ± 5.21; No-drug group: 10.19 ± 9.08; Unit: days; p Conclusion: Patients with MJ use stayed shorter and received lower doses of antipsychotic medications compared to patients with no drug use. Although patients using SC had more severe psychiatric symptoms at their acute clinical presentation, they had a hospital stay similar to MJ patients indicating relatively rapid recovery from acute SC toxicity.

Financial Support: None

First Name: Huiqiong (Joan)

Last Name: Deng

Degrees: MA MD Ph.D etc:: MD, Ph.D

Company Affiliation: University of Texas Health Science Center, McGovern Medical School

ID: 136
Post-birth treatment outcomes in pregnant, methadone-maintained women

Jennifer Ellis, Wayne State University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Perinatal

Abstract: AIM: The aim of this project was to examine relapse and treatment attrition among recently-delivered women in methadone maintenance (MMT), who did or did not receive an opioid prescription post-delivery. METHOD: A retrospective chart review of pregnant women enrolled in MMT who gave birth in local hospitals was conducted. Chi-square tests were used to examine whether receiving an opioid prescription was related to treatment attrition. Logistic regression analyses, controlling for proportion of positive screens before birth, were conducted to examine whether receiving an opioid prescription at discharge following delivery was associated with relapse at 30, 90, and 180 days post-delivery. RESULTS: Data from 87 women found that 6.9% (N = 6) did not return to MMT after delivery, 31.0% (N = 28) discharged within 30 days, 46.0% (N = 41) discharged within 90 days, and 51.7% (N = 45) discharged within 180 days. Of those discharged within 180 days, 42.2% were opioid-negative at discharge. 26.4% (N = 23) received opioid prescriptions post-delivery, which was marginally related to greater treatment retention at 30 days ($\chi 2 = 3.66$, $p = .056$). Sixty-five women with >1 post-delivery urine drug screen were included in analyses examining effects of opioid prescriptions on relapse. Receiving an opioid prescription was associated with a greater likelihood of relapse within 30 days (Wald $\chi 2 = 7.40$, OR = 6.11, $p = .007$), 90 days (Wald $\chi 2 = 4.84$, OR = 4.35, $p = .028$), and 180 days (Wald $\chi 2 = 5.88$, OR = 5.80, $p = .015$). CONCLUSION: The post-partum period is a challenging time for pregnant women receiving MMT. Women who received an opioid prescription post-delivery were particularly likely to relapse.

Financial Support: None.

First Name: Jennifer

Last Name: Ellis

Degrees: MA MD Ph.D etc:: MA

Company Affiliation: Wayne State University

ID: 137
Cocaine use among emerging adults in the united states: Trends by race, sex, and college enrollment in the national survey on drug use and health (2002-2014)

Kristin Schneider, Johns Hopkins Bloomberg School of Public Health, Department of Mental Health

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Stimulants

Topic: Epidemiology

Abstract: Aim. Emerging adults have the highest rates of substance use across the lifecourse. Little research has studied cocaine use during emerging adulthood. We aim to describe trends in cocaine use among emerging adults, by race/ethnicity, sex, and college enrollment. Methods. We estimated the prevalence of 4 cocaine use indicators (lifetime use, past 12-month use, past 30-day use, and past 12-month use disorders) by year among emerging adults (ages 18-22). We then stratified these estimates by race/ethnicity, sex, and college enrollment. We tested for linear and quadratic trends over time. Results. Averaged across years, 13%(95%CI:12.7,13.2) of emerging adults had ever used cocaine, 5.9%(95%CI:5.8,6.1) had used cocaine in the past 12-months, 1.7%(95%CI:1.7,1.8) had used in the past 30-days, and 1%(95%CI:1.0,1.1) had a use disorder in the past 12-months. We observed linear decreases in all four cocaine use indicators across the study period in the overall sample. The prevalence of lifetime use declined continuously from 15.2%(95%CI:14.3,16.1) in 2002 to 9.7%(95%CI:8.9,10.4) in 2014. Similarly, past 12-month use declined from 7.2%(95%CI:6.6,7.8) to 4.7%(95%CI:4.1,5.3), and past 30-day use declined from 2.3%(95%CI:2.0,2.5) to 1.3%(95%CI:1.1,1.7). Non-students (15.2%, 95%CI:15.0,15.5) had higher rates of lifetime cocaine use than students (9.6%, 95%CI:9.3,9.9), but the differences between groups were small for other use indicators. White (8.9%, 95%CI:8.6,9.2) and American Indian (8.7%, 95%CI:5.3,12.0) males had the highest rates of past 12-month cocaine use, followed by multi-racial (7.8%, 95%CI:6.2,9.3) and Hispanic (6.9%, 95%CI:6.3,7.4) males. Black females (0.9%, 95%CI:0.6,1.2) and males (1.7%, 95%CI:1.3,2.0) and Asian females (1.4%, 95%CI:0.9,2.0) had the lowest prevalences of past 12-month cocaine use. Trends in cocaine use over time varied substantially by race/ethnicity. Conclusions. Cocaine use has declined significantly among emerging adults since the early 2000's, yet use remains relatively common among emerging adults. Given the severe health consequences of cocaine, more public health attention to this issues is needed.

Financial Support: This research was supported by T32DA007293 (PI: Johnson) and K01DA031738 (PI: Johnson).

First Name: Kristin

Last Name: Schneider

Company Affiliation: Johns Hopkins Bloomberg School of Public Health, Department of Mental Health

ID: 138
Factors associated with psychiatric symptomatology among a cohort of people who inject drugs (PWID) in Haiphong, Vietnam and clinical implications

Laurent Michel, Centre Pierre Nicole

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: AIM Mental health disorders represent a heavy burden for PWID. The aim of this survey is to identify the factors associated with psychiatric disorders among a cohort of PWID in Haiphong, Vietnam, in order to tailor a comprehensive community-based approach including psychiatric care. METHODS Recruitment of a 12 months cohort of PWID took place through Respondent Driven Sampling in two community-based organization offices. Sociodemographic and administrative situation, medical status, drug use, sexual behavior and mental health (depressive symptomatology with a 8-item short form of the CES-D, psychotic symptoms through questions of the MINI questionnaire) were systematically assessed at month 6 and month 12 visits in order to identify conditions associated with the occurrence of psychiatric disorders. RESULTS Among 773 PWID recruited, 760 were enrolled in the cohort between October 2016 and January 2017; 645 attended month 6 visit (85%) and 605 attended month 12 visit (80%). 91.7% were male, mean age was 39.6 (± 8.3), all were injecting heroin, 68.1% ever smoked methamphetamines and 20.4% used other drugs (mainly cannabis or ecstasy, ketamine). Prevalences of depressive and psychotic syndromes were respectively 17.1% and 4.2% at month 6 visit, 10.9% and 4.8% at month 12 visit. Factors independently associated with presenting a depressive syndrome were being HIV and/or HCV positive (RR=1.69; 1.01-2.83 CI), taking street methadone (RR=1.76; 1.18-2.65 CI) and using non-injectable drug other than heroin and methamphetamines during the last 6 months, which significantly increased with time (p=0,0118; at 12 months, RR=2.30;1.30-4.09); having smoked methamphetamines (RR=3.43; 1.83-6.43 CI) and being a binge drinker (RR=2.65; 1.45-4.85 CI) were associated with presenting a psychotic syndrome. CONCLUSION The data indicate an important need for psychiatric care among PWID in Haiphong. We will report acceptability and cost of field psychiatric intervention we are currently testing.

Financial Support: Supported by the NIDA and the French National Agency for Research on AIDS and Viral Hepatitis.

First Name: Laurent

Last Name: Michel

Degrees: MA MD Ph.D etc:: MD, PH.D

Company Affiliation: Centre Pierre Nicole

ID: 139
Associations between the orexin (hypocretin) receptor 2 gene polymorphism Val308Ile and nicotine dependence found in genome-wide and subsequent association studies

Daisuke Nishizawa, Tokyo Metropolitan Institute of Medical Science

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Genetics

Abstract: AIM: Many genetic and environmental factors are involved in the etiology of nicotine dependence. Although susceptible gene variations have been reported by candidate gene or genome-wide association studies (GWASs) to be associated with smoking behavior and the vulnerability to nicotine dependence, such studies have been mostly conducted with subjects with European ancestry. However, genetic factors have rarely been investigated for the Japanese population as GWASs. To elucidate genetic factors involved in nicotine dependence in Japanese, the present study comprehensively explored genetic contributors to nicotine dependence by using whole-genome genotyping arrays with more than 200,000 markers in Japanese subjects. METHODS: The subjects for the GWAS and replication study were 148 and 374 patients, respectively. A two-stage GWAS was conducted using the Fagerström Test for Nicotine Dependence (FTND), Tobacco Dependence Screener (TDS), and number of cigarettes smoked per day (CPD) as indices of nicotine dependence. For the additional association analyses, patients who underwent major abdominal surgery, patients with methamphetamine dependence/psychosis, and healthy subjects with schizotypal personality trait data were recruited. Autopsy specimens with various diseases were also evaluated. RESULTS: After the study of associations between more than 200,000 marker single-nucleotide polymorphisms (SNPs) and the FTND, TDS, and CPD, the nonsynonymous rs2653349 SNP located on the gene that encodes orexin (hypocretin) receptor 2 was selected as the most promising SNP associated with FTND. This association was replicated for the remaining 374 samples. This SNP was also associated with postoperative pain, the initiation of methamphetamine use, schizotypal personality traits, and susceptibility to goiter. CONCLUSION: The rs2653349 SNP (Val308Ile) may be a genetic factor related to nicotine dependence and possibly pain, schizotypal personality traits, and goiter in the Japanese population.

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First Name: Daisuke

Last Name: Nishizawa

Degrees: MA MD Ph.D etc:: Ph.D

Company Affiliation: Tokyo Metropolitan Institute of Medical Science

ID: 141
Predictors of craving and substance use among patients with alcohol, tobacco, cannabis or opiates addictions: Commonalities and specificities across substances

Marc Auriacombe, Université de Bordeaux

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Mechanisms of Action

Abstract: Aim: The aim of the present study was to examine and compare the prospective links between emotions, craving and substance use among four groups of patients beginning treatment for alcohol, tobacco, cannabis, and opiate addiction. Methods: Ecological Momentary Assessment (EMA) was used over a two-week period. Results: The findings confirmed the strong predictive value of craving intensity on substance use reported at the next assessment, occurring on average four hours later, among alcohol ($\gamma = 0.224$; $p=0.018$), tobacco ($\gamma = 0.133$; $p=0.013$) and cannabis ($\gamma = 0.266$; $p=0.019$), but not opiate groups ($\gamma = 0.098$; $p=0.142$). Craving intensity was predicted by higher anxious mood ($\gamma = 0.108$; $p=0,029$) and event negativity ($\gamma = 0.107$; $p=0.003$) among tobacco patients, lower sad mood among cannabis patients ($\gamma = -0.248$; $p =0,002$), and lower event negativity among opiate patients ($\gamma = -0.201$; $p =0.002$). Conclusion: These results support the benefit of targeting craving in addiction treatment, whatever is the substance concerned. Substance-specific emotional risk factors for craving were identified in this study and may be particularly relevant in the context of personalized medicine.

Financial Support: PHRC 2006-2012, MILDT 2010, Research Grant AAP-Recherche-CRA (20091301018), French National Research Agency PRA-CNRS-CHU-Bordeaux award (2008-2010), CNRS ATIP

First Name: Marc

Last Name: Auriacombe

Degrees: MA MD Ph.D etc:: M.D., M.Sc.

Company Affiliation: Université de Bordeaux

ID: 142
12-month outcomes of methadone and buprenorphine maintained patients: A study in naturalistic conditions

Marc Auriacombe, Université de Bordeaux

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: Aim: 12-month treatment outcome comparison of opiate use disorder individuals beginning opiate maintenance treatment under naturalistic conditions, with buprenorphine or methadone. Methods: The ADDICTAQUI cohort is a prospective cohort, initiated in 1994, including individuals who are spontaneously seeking treatment for any kind of addictive disorder in outpatient addiction clinics in Aquitaine, France. Participants are assessed every 6 months. Multidimensional Addiction severity was assessed with Addiction Severity Index (ASI), and Quality of life with the Nottingham Health Profile (NHP). For this analysis, individuals who started opiate maintenance treatment between January 1st 1994 and December 31st 2015, and for whom both baseline and 12-month follow-up assessments were available were selected. Results: The sample consisted of 283 individuals, 110 (38,9%) receiving buprenorphine, and 173 (61,1%) methadone maintenance treatment. The baseline severity of addiction was similar for individuals receiving buprenorphine and methadone. At 12-month follow-up, both buprenorphine and methadone maintenance treatment reduced addiction severity and improved the quality of life. Both heroin and other opiate use reduced significantly regardless of the maintenance treatment. The percentage of alcohol, benzodiazepines and cocaine users was significantly reduced at 12-month follow-up in individuals receiving buprenorphine, but not methadone. Conclusions: Buprenorphine and methadone were overall equally efficient to improve the multidimensional severity of addiction and to improve the quality of life of individuals in the naturalistinc setting of this study. Buprenorphine might be more efficient to reduce associated substance use problems such as alcohol, benzodiazepines and cocaine.

Financial Support: PHRC 2006, MILDT 2010.

First Name: Marc

Last Name: Auriacombe

Degrees: MA MD Ph.D etc:: M.D., M.Sc.

Company Affiliation: Université de Bordeaux

ID: 143
European opioid addiction treatment survey – EUROPAD – The France experience

Marc Auriacombe, Université de Bordeaux

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Epidemiology

Abstract: Background: In 2012 the RADARS System initiated an international multicentre observational European Opiate Addiction Treatment Association (EUROPAD) study to: 1) identify prescription opioid and other substance abuse patterns reported by patients seeking treatment for drug abuse or dependence in European countries (France, Germany, Italy, Norway, Spain, United Kingdom), 2) examine characteristics associated with the reported primary drug of abuse, 3) calculate drug abuse prevalence by region and follow these prevalences over time. Aim: The aim of this analysis is to describe prescription opioid and other substance abuse patterns reported by French patients. Methods: Eligible participants were systematically administered the survey at treatment entry prior to any treatment by site investigators. Survey questions include inquiries regarding demographics, treatment history, drugs used “to get high” in the past 90 days, frequency and route of abuse, source for obtaining drugs, and consequences of drug abuse. Results: Among the overall results, 78% of newly enrolled patients were men, 35.4 years old (ET = 10.5). For France, the most endorsed primary drug was non-pharmaceutical THC/cannabis/marijuana (46%). Preferred medications to get high were opiates (15%), mainly injected (43%) and sniffed (37%), benzodiazepines (9%) and amphetaminic treatment (1%). Conclusions: Knowledge of drug use patterns, specifically which drugs are used, can support the development of more effective treatments and harm reduction policies.

Financial Support: Denver Health and Hospital Authority, RADARS® System

First Name: Marc

Last Name: Auriacombe

Degrees: MA MD Ph.D etc:: M.D., M.Sc.

Company Affiliation: Université de Bordeaux

ID: 144
Characteristics of problematic users of trihexyphenidyl in a French overseas territory

Marc Auriacombe, Université de Bordeaux

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Epidemiology

Abstract: Aim: Search for potential THP use disorder diagnosis according to DSM-5 among off-label THP users. Method: This cross-sectional survey was carried out in Reunion Island (France) in 2017. Voluntary subjects with off-label use of THP were recruited in specialized addiction treatment centers, office-based general medical practice and mental hospitals. They were interviewed with the Addiction Severity Index (ASI), the Mini International Neuropsychiatric Interview (MINI), a visual analog scale for craving intensity and a questionnaire exploring motivation for use. Instruments were adapted to evaluate THP use. Results: 57 subjects were included (88% men, average age 38 y.o, SD=9 y.). According to ASI, participants needed treatment for alcohol (14.0%), substances (80.7%), tobacco (68.4%) and other behavioral addictions (3.5%). Lifetime regular use of THP averaged 15.4 years (SD=8.4 y.). 86.5% (n=45; 52 responses) of participants were diagnosed with lifetime THP use disorder (current: 77.2%, severe: 71.1%). The majority (73.6%) experienced craving for THP in the last 30 days. Other substance addictions and psychiatric comorbidities frequently co-occurred with THP use disorder (88.9% & 56.8% respectively). Motivations to use THP were hedonic for 10.4%, self-treatment for 33.3% and 56.3% reported both motivations. Conclusion: A majority of off-label THP users in treatment settings met criteria for THP use disorder and reported craving. Evaluation of use disorder criteria should be carried out systematically for better treatment of off-label users of THP.

Financial Support: Supported by internal funds, University of Bordeaux, France

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Last Name: Auriacombe

Degrees: MA MD Ph.D etc:: M.D., M.Sc.

Company Affiliation: Université de Bordeaux

ID: 145
Gender differences in opioid agonist treatment and outcomes among persons with opioid use disorder in the United States

Jennifer Manuel, New York University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: AIM: Despite growing numbers of women and men in treatment for opioid use disorder, gender differences in treatment have not been re-examined among patients with opioid addiction. The current study evaluated whether there are gender differences in opioid agonist treatment (OAT) and outcomes among adults with opioid use disorders entering in public funded treatment programs in the United States. METHODS: Data were analyzed using the 2006-2014 National Treatment Episode Dataset-Discharges. RESULTS: Only 28.5% of women and 27.2% of men received OAT across the study period. The rate of OAT significantly decreased over time for men compared to women, a trend that remained consistent in the multivariate models. Compared to women, men were significantly less likely to receive OAT in the multivariate models. Among patients receiving OAT, the relationship between gender and treatment completion varied significantly by type of opioid use disorder (heroin vs other opiates). CONCLUSION: OAT receipt of treatment is low overall and appears to be declining, especially among men. Male heroin users are at particular risk of having less access to OAT and poor treatment outcomes. More research is needed to understand gender-specific barriers in treatment to address these disparities and increase access to evidence-based treatment.

Financial Support: NIDA 1K01DA035330

First Name: Jennifer

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Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: New York University

ID: 146
Opioid overdoses and suicidality in an emergency setting

A Srivastava, Department of Psychiatry, Washington University School of Medicine

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Policy

Abstract: AIM: Opioid overdoses more than quadrupled since 2010 which represents an unprecedented public health burden with a high degree of recidivism. Converging epidemiological evidence suggests that many are unrecognized suicide attempts; however most care in the emergency department (ED) involves medical stabilization and subsequent discharge. We sought to examine disposition decisions and frequency of psychiatric consultation as well as the prevalence of suicidal thoughts and behaviors in patients presenting to the ED of a large, urban academic hospital following an opioid overdose. METHODS: We performed a retrospective, single cohort study using data from January 2005-December 2016, identifying all patients presenting to the ED following opioid overdoses utilizing ICD9/ICD10 diagnoses. We also queried the presence of suicidal ideation/behavior (by either the nursing triage assessment, chief complaint, or ED physician diagnosis), age, race, gender, comorbid substance and mood disorders, naloxone administration, Glasgow Coma Score (GCS), number of visits, psychiatric consultation, and disposition location. We modeled predictors of disposition with multivariable analyses to estimate odds ratios and 95% confidence intervals (OR; 95% CI) using a generalized estimating equation, accounting for repeated measures. RESULTS: We identified 1,939 opioid overdoses, and 340 (17.5%) of these patients were admitted. In this sample of 1,939 overdoses, 495 (25.5%) of which were repeat presentations, suicidal ideation/behavior was present in 3.6%, and 3.2% received psychiatric consultation. Additionally, mood disorders were diagnosed in 1.1% of patients. Predictors of admission included increasing age, suicidal ideation (4.8; 2.5-8.9), a psychiatric consultation (4.5; 2.1-9.6), naloxone administration (2.3; 1.7-3.1), and GCS =< 10 (2.2; 1.2-4.0). CONCLUSION: Suicidal ideation and the presence of a mood disorder were infrequently documented in this cohort, which are likely underestimations. Psychiatric and/or medical instability was predictive of admission. A prospective, comprehensive suicide risk assessment and stratification should be incorporated into emergency management following an opioid overdose.

Financial Support: Paula J. Clayton, MD Hawthorne Foundation Award, Washington University in St. Louis School of Medicine

First Name: A

Last Name: Srivastava

Degrees: MA MD Ph.D etc:: MD

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ID: 147
Formative evaluation of a mobile application to assist with methadone stabilization

Emily Loscalzo, Thomas Jefferson University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Technology Issues

Abstract: AIM Medication assisted treatment (MAT) featuring methadone remains a treatment of choice for opioid dependent individuals. While ASAM guidelines (Baxter, 2013) suggest that it should take approximately 12 weeks to successfully stabilize individuals, recent evidence suggests that process is becoming more difficult/lengthy (Scavone et al., 2013; Jaremko et al., 2015). Since previous research has suggested the feasibility/acceptability of smartphone interventions in treatment for opioid use disorder (Guarino et al., 2016; Welsh, 2016), a formative evaluation was conducted to assess utility and patient interest in a mobile application that will aim to assist in decreasing time to methadone stabilization, thereby improving long-term outcomes. This application would allow individuals enrolling in MAT to communicate in real time their experience of withdrawal symptoms. METHODS Participants were a convenience sample of 54 MAT patients, 33 of whom were assigned to intensive outpatient (IOP) level of care, who completed voluntary surveys that were distributed in the waiting area or during IOP group therapy services. Surveys were designed to assess 1) patient smartphone ownership and capabilities, and 2) willingness install a free application on their smartphone that would allow them to report their withdrawal symptoms as they occur so that their dose can be adjusted more efficiently. RESULTS Results indicated that 81.5% of participants owned smartphones; 78.8% would be willing to install an application to assist with stabilization, regardless of smartphone ownership. There was no difference in responses regarding smartphone ownership ($\chi 2 = 1.843$, $p > 0.05$) or willingness to install the application ($\chi 2 = .094$, $p > 0.05$) in individuals in outpatient versus IOP treatment. Reasons for reluctance to install the application were generally related to privacy concerns. CONCLUSION Overall, this survey suggested that individuals in MAT have access to smartphones and have interest in using technology to enhance their treatment.

Financial Support: None

First Name: Emily

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Degrees: MA MD Ph.D etc:: Psy.D.

Company Affiliation: Thomas Jefferson University

ID: 148
Sex differences in sources and routes of non-medical prescription opioid use in youth

Vicki Osborne, University of Florida

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Sex Differences

Abstract: Aim: Non-medical use (NMU) of prescription opioids is a public health concern and sex differences in prevalence of NMU have been observed previously. Little is known about how youth are obtaining and using these medications and if their NMU patterns differ by sex. We evaluated sex differences in patterns of prescription opioid NMU among youth. Methods: The National Monitoring of Adolescent Prescription Stimulants Study (N-MAPSS) recruited youth 10-18 years of age from 10 US metropolitan areas from 2008 to 2011 with a final sample of 11,048 youth (10,965 with information on prescription opioid use). The cross-sectional survey included questions on use of prescription opioids, with NMU defined as use by a non-oral route (non-oral use) and/or use of someone else's prescription opioids. Summary descriptive statistics and chi square tests were conducted using SAS 9.4. Results: Among the 10,965 youth, prevalence of prescription opioid NMU was 3.1% (n=345) with 206 (59.7%) reporting use of someone else's opioids only, 18 (5.2%) reporting non-oral use only and 121 (35.1%) reporting use of someone else's opioids and non-oral use. In total, seven sources of prescription opioids were assessed and three routes of administration. Prescription opioids that belonged to a classmate were more frequently used by males (n=111/185, 60.0%) compared to females (n=53/142, 37.3%; $p < 0$ .01). Prescription opioids that belonged to a parent were more frequently used by females (n=59, 41.5%) compared to males (n=44, 23.8%; $p <$ 0 .01). In terms of non-oral use, snorting prescription opioids was more frequent among males compared to females (n=85/267, 31.8% and n=44/258, 17.1%; $p < 0$ .01). Conclusions: Sex differences in patterns of NMU were observed and suggest that prevention approaches should differ for males and females. Females are more likely to be using a family member's prescription, while males are more likely to be using a prescription from someone outside of their family.

Financial Support: The N-MAPSS study was implemented by Washington University in St Louis and University of Florida under contract from Pinney Associates, Inc., with funding provided by Shire Development LLC and Noven Therapeutics.

First Name: Vicki

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ID: 150
Successful retention strategies for participants in opioid-dependence research in NYC

Peter Greco, New York University School of Medicine

Abstract Category: Program Descriptions

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: Aim: As the current opioid epidemic garners heightened national attention, many have called for an increase in research on effective treatment and harm reduction options for opioid-dependent patients. It is well known that populations that are unstably housed, of lower socio-economic status, and dealing with comorbid mental health and substance abuse issues pose a challenge for researchers in terms of study retention. Here we describe successful retention strategies employed in an ongoing NIH-funded study with opioid-dependent patients presenting to medical emergency departments. Methods: Participants are recruited from Bellevue Hospital Center's Emergency Department in New York City and randomly assigned to receive either 6 sessions of case management or a referral to local treatment services. Participants in the case management arm are assigned a case manager for 90 days following randomization. All participants complete follow-up visits at 3 and 6 months post-randomization. Results: To date, the study has achieved 82% follow-up at the 6-month visit. Three particular retention strategies have contributed to high follow-up rates. First, study eligibility criteria include a minimum requirement for contact information. In order to qualify for the study, participants must provide working phone numbers and addresses for two "locators" – people with whom they are in touch. Second, our team has cultivated contacts at city institutions frequently accessed by the study population. Of particular note are collaborative relationships with NYC's Departments of Corrections and Homeless Services, which allow us to conduct research visits in correctional institutions and obtain information on shelter placements. Third, we developed study operating procedures that promote, organize, and track assertive outreach by staff. We employ active street outreach and hold regular meetings to monitor retention efforts for each individual participant. Conclusions: Some of the strategies used in this study may assist other researchers in achieving high levels of retention when conducting substance abuse research.

Financial Support: NIDA (NIH) Grant #R01DA034613

First Name: Peter

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Degrees: MA MD Ph.D etc:: MPH

Company Affiliation: New York University School of Medicine

ID: 151
Analysis of neurotransmitter and inflammatory biomarkers during synthetic cathinone self-administration

Julie Marusich, RTI International

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Club/Designer Drugs

Topic: Neurobiology

Abstract: Aims: Synthetic cathinones are used as stimulants of abuse. This research sought to behaviorally differentiate different stages of synthetic cathinone abuse using a rodent self-administration model, and measure the neurotransmitter and cytokine profile in multiple brain regions. We hypothesize that stimulant-induced neuroplasticity differs based on mechanism of action, duration of drug exposure, and sex, and that these differences are due to underlying neuronal and non-neuronal neurochemical changes. Methods: Male and female rats were trained to self-administer α-PVP, mephedrone, or saline. Half of each drug group stopped self-administering after autoshaping (n=8/sex/group); the other half self-administered for another 21 days (n=8/sex/group). Brain tissue from striatum, thalamus, PFC, hippocampus, amygdala, and hypothalamus was profiled with a liquid chromatography electrochemical array to assess neurotransmitters. Cytokines were measured in brain and plasma to examine inflammation. Results: Rats acquired synthetic cathinone self-administration. During autoshaping, rats responded more on the active lever than inactive [p=0.03], and males responded more than females [p=0.04]. Following autoshaping, male rats responded more for α-PVP and mephedrone than saline [mephedrone: p=0.0005; α-PVP: p=0.04]. Self-administration is ongoing for females, and preliminary results show that rats are self-administering more α-PVP and mephedrone than saline. Brain tissue and plasma are currently being processed for male rats. Results for neurotransmitters and cytokines will be presented for all groups. Conclusion: We expect changes in dopamine for all synthetic cathinone groups, indicating activation of reward pathways. We expect additional neurotransmitter changes in prefrontal cortex, hippocampus, and striatum for rats that self-administered synthetic cathinones for 21 days in association with preoccupation with drug effects. We also expect increased expression of cytokines for synthetic cathinone groups, indicating that exposure to cathinones leads to inflammation. Results will lead to an improved understanding of the changes that occur during the development of addiction, and provide biomarkers indicating the state of disease progression.

Financial Support: NIDA Grant DA039315

First Name: Julie

Last Name: Marusich

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Company Affiliation: RTI International

ID: 152
Pre-exposure prophylaxis (PrEP) for people who inject drugs? A scoping review of HIV treatment adherence research

Angela Bazzi, Boston University School of Public Health

Abstract Category: Literature Review

Abstract Detail: Human

Drug Category: Polydrug

Topic: AIDS/Immune

Abstract: AIM: To conducted a scoping review to inform research on antiretroviral pre-exposure prophylaxis (PrEP) for HIV prevention among people who inject drugs (PWID). Despite elevated HIV risk, PrEP is underutilized among PWID, and specific intervention needs are largely unknown and understudied. Evidence on antiretroviral therapy (ART) adherence among HIV-infected PWID could provide important insight. METHODS: We drew from the Behavioral Model of Healthcare Utilization for Vulnerable Populations and used an iterative scoping review methodology. We searched four electronic databases (PubMed, Web of Science, PsycINFO, EMBASE) to identify 2006-2016 studies reporting correlates of ART adherence among HIV-infected PWID in the U.S. and Canada. RESULTS: From 1,049 unique records, we included 20 studies (15 longitudinal, 5 cross-sectional; mean sample size: 465). Adherence-related outcomes were assessed via pharmacy records (n=9), self-report (n=8), biological markers (n=5), and electronic monitoring (n=2). In line with the predisposing domain of the Behavioral Model (i.e., unmodifiable patient-level barriers), we identified strong evidence of lower adherence among younger PWID, women, and those experiencing social and structural vulnerability (e.g., incarceration, homelessness). Enabling resources (i.e., facilitators of adherence that could be promoted by interventions) included self-efficacy, medication-assisted substance use treatment, and good patient-provider relationships. Need-related factors (i.e., competing risks that could require specific intervention strategies or adaptations) included co-occurring physical and mental health conditions (e.g., HCV, depression) and engagement in sex work. CONCLUSION: Unlike other systematic reviews describing ART adherence in substance using populations, our scoping review synthesized and interpreted the relevance of existing evidence on ART adherence for the development of PrEP interventions specifically for PWID using the Behavioral Model of Healthcare Utilization for Vulnerable Populations. Findings highlight specific predisposing, enabling, and need-related factors that should be further investigated as intervention targets. Based on these factors, we suggest potential intervention strategies to promote PrEP adherence for this underserved population.

Financial Support: The Boston-Providence Center for AIDS Research collaborative developmental grant (NIH grant P30AI042853), NIH/NIDA grant K01DA043412, and the BU Peter Paul Career Development Professorship.

First Name: Angela

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Degrees: MA MD Ph.D etc:: PhD, MPH

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ID: 153
Selective biphasic antagonism of intravenous d-methamphetamine self-administration by disulfiram in rhesus monkeys

Fernando de Moura, McLean Hospital, Harvard Medical School

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Stimulants

Topic: Behavior

Abstract: Aims- Abuse of monoaminergic drugs (e.g., d-methamphetamine; cocaine) remains a significant public health problem in the United States, highlighting the need for effective pharmacotherapies to manage this substance-abuse disorder. Disulfiram (Antabuse) is an acetaldehyde dehydrogenase and dopamine-beta hydroxylase inhibitor that has been used previously as a treatment for alcoholism and, more recently, has been shown to reduce abuse-related effects of the dopamine uptake inhibitor cocaine (COC). The present studies were conducted to further examine the therapeutic potential of disulfiram by evaluating its modification of the behavioral effects of the dopamine releaser d-methamphetamine (dMA). Methods- Here, rhesus monkeys either self-administered i.v. dMA or, in other studies, discriminated COC (0.32 mg/kg i.m.) from vehicle under fixed-ratio schedules of reinforcement (N=4/group). Results- Methamphetamine maintained i.v. self-administration in all subjects, generating an inverted U-shape relationship between dose and intake. Pretreatment with a dose of disulfiram that did not alter rates of food-maintained behavior (5.6 mg/kg) produced a significant downward shift in the dMA dose-response function ($F_{2,24} = 5.16$, $p=0.014$); surprisingly, lower and higher pretreatment doses were ineffective [3.2 mg/kg: ($F_{2,23} = 0.07$, $p=0.93$); 10 mg/kg: ($F_{2,23} = 0.81$, $p=0.46$). The effects of disulfiram were mixed in monkeys trained to discriminate COC from saline. dMA dose-dependently substituted for the COC discriminative stimulus. On average, no pretreatment dose of disulfiram (3.2, 5.6, and 10 mg/kg) significantly altered the discriminative stimulus effects of dMA ($F_{6,32} = 0.41$, $p=0.86$). Conclusion- Taken together, the present data reveal a very limited effectiveness of disulfiram in modifying abuse-related effects of dMA, and do not support its further development for the management of monoaminergic stimulant abuse.

Financial Support: R01DA002519 K01DA039306

First Name: Fernando

Last Name: de Moura

Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: McLean Hospital, Harvard Medical School

ID: 154
The wrong crowd: Social influences on cue-induced cocaine seeking.

Lindsey Hammerslag, University of Kentucky

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Stimulants

Topic: Behavior

Abstract: Aims: Recovering addicts remain at a high risk for relapse even after prolonged abstinence. One potential trigger for relapse is re-association with drug-using peers. However, preclinical models of addiction and relapse often overlook the contribution of social environment to the reinstatement of drug seeking, focusing instead on inanimate (e.g., light) cues. In the current study we examined whether there is an interaction between social and inanimate cues by using a discriminative stimulus paradigm to study the influence of each on the reinstatement of cocaine seeking. We hypothesized that reinstatement induced by a discrete cue (CS) would be enhanced by the presence of a cocaine-associated (S+) peer and inhibited by a saline-associated (S-) peer. Methods: Rats (n=12) self-administered cocaine in the presence of the S+ peer and saline in the presence of the S- peer during separate twice-daily 60-min sessions, presented randomly and separated by 60 min. Each infusion of cocaine (0.5 mg/kg/infusion) was paired with the illumination of a cue light for 20-sec. After 28 days of self-administration (SA) they received 12 once-daily 60-min extinction sessions (no peers or cues) before reinstatement testing began. Five reinstatement conditions were tested in each rat in random sequence, with each test separated by 3 extinction sessions: S+ alone, S- alone, CS alone, CS/S+, CS/S-. Results: Rats learned to discriminate during SA, earning the first infusion more rapidly ($F_{1,7} = 12.2$, $p = 0.010$) and responding more ($F_{1,7} = 273$, $p < 0.001$) with the S+ peer. During reinstatement, cocaine seeking was greater when the CS was present ($F_{1,7} = 18.7$, $p = 0.003$) and was influenced by a main effect of peer ($F_{2,14} = 4.01$, $p = 0.042$), these effects appeared to be additive. Conclusions: This study provides support for the notion that re-exposure with drug-associated peers may enhance cue-induced cocaine seeking.

Financial Support: NIDA T32 DA016176, NIDA R21 DA041755

First Name: Lindsey

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Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: University of Kentucky

ID: 155
Pilot testing a novel signal-detection task of cannabis-cue attentional bias

Joseph Alcorn, University of Kentucky

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Behavior

Abstract: Aim: Attentional bias to drug cues is thought to contribute to the persistence of substance use disorders. The cognitive mechanisms underlying this bias are not fully understood in cannabis-using individuals. The hypothesis of this study was that bias is associated with cannabis-cue-dependent disruptions in attentional processing. The purpose of this investigation was to pilot test a novel cannabis-cue attentional bias task that utilized attention-based metrics derived from signal detection theory. Methods: Seventeen cannabis-using individuals and fifteen cocaine-using individuals (N = 32) have completed this ongoing study. Cocaine-using individuals were included as a clinical-control group. In this modified visual-probe task, fixation time to both cannabis and neutral images (i.e., cues) was used to index attentional bias. Images were briefly presented side-by-side on a computer screen while an eye-tracker recorded fixation time. A “go” or “no-go” target appeared upon offset of both images, which permitted the use of signal detection metrics. Repeated measures ANOVAs were used to analyze behavioral data. Results: Preliminary results revealed attentional bias towards cannabis images in cannabis users (d = 0.75), but not cocaine users (d = 0.33). Signal detection measures showed that cocaine users displayed poorer performance (e.g., inattentiveness, delayed responding), as compared to cannabis users. The presentation of cannabis images did not alter attentional performance in either group. Conclusion: Cannabis users exhibited attentional bias but not cue-dependent disruptions of attentional processing. Cocaine users did not display cannabis-cue attentional bias, but did display poor attentional performance compared to cannabis-using individuals. This novel signal-detection task is sensitive and specific to cannabis use history and has external validity with respect to measuring attentional performance. Cannabis-cue attentional bias in cannabis users is not associated with cue-dependent disruptions in attentional processing. Motivational factors may instead be the main contributors to attentional bias.

Financial Support: T32DA035200, R01DA036550

First Name: Joseph

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Company Affiliation: University of Kentucky

ID: 156
Leveraging technology to address unhealthy drug use in primary care: Development of a clinical decision support tool for primary care providers

Jennifer McNeely, New York University School of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Technology Issues

Abstract: AIM: Lack of knowledge about substance use among primary care providers (PCPs) can potentially be addressed by clinical decision support (CDS) that offers patient-specific, actionable information at the point of care. We sought to develop a tablet-based CDS tool to facilitate PCP delivery of brief interventions for unhealthy drug use. METHODS: Our CDS development process is based on principles of the Technology Acceptance Model (TAM-2), which specifies that perceived usefulness and ease of use impact adoption of new technology. Input from an expert panel (clinical informaticists, PCPs, medical director) and interviews with 5 PCPs informed development of a prototype that is being evaluated and adapted through 3 rounds of usability testing by practicing PCPs. Notes, audio recordings, and screen recordings are analyzed to identify usability issues and optimize content and interface design. RESULTS: PCPs stated that CDS for addressing drug use would be useful and is likely to improve the quality of their drug interventions, but were concerned about the time it requires and integration with the electronic health record. In usability testing Round 1 (n=7), major revisions were recommended to simplify the content of the CDS and allow for more flexibility. In Round 2 (n=8), feedback focused on design and interface issues, and no major content or format changes were recommended. A third round of testing in January 2018 will evaluate the CDS using simulated patient scenarios, to inform how it fits into clinical workflows. Results from all three usability testing rounds will be presented. CONCLUSION: An iterative approach to CDS development can increase its acceptability to PCP end-users. The feasibility of integrating substance use interventions into medical visits will be evaluated in the next study phase, which assesses the impact of patient self-administered screening paired with CDS on delivery of brief intervention by PCPs during primary care encounters.

Financial Support: NIH/NIDA R34DA040830

First Name: Jennifer

Last Name: McNeely

Degrees: MA MD Ph.D etc:: MD,MS

Company Affiliation: New York University School of Medicine

ID: 158
The effects of extended-release injectable naltrexone and incentives for opiate abstinence in heroin-dependent adults: A randomized trial

Brantley Jarvis, NorthTide, LLC

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: AIM: Because many individuals use opiates under injectable extended-release naltrexone (XR-NTX) blockade, we evaluated whether adding incentives for opiate abstinence to XR-NTX treatment could reduce opiate use. METHOD: Participants were unemployed heroin-dependent adults invited to a model therapeutic workplace where they could work on job skills training for 4 hours every weekday for 24 weeks and earn about $10 per hour. After a detoxification and oral naltrexone induction, participants (N = 84) were assigned to a Usual Care, Abstinence Incentives, XR-NTX, or XR-NTX plus Abstinence Incentives group. Participants provided thrice weekly urine samples. Abstinence Incentives participants had to provide opiate-free urine samples to maintain maximum pay. XR-NTX participants received one injection every 4 weeks and were required to take injections to work and maintain maximum pay. Usual Care participants were not offered XR-NTX and opiate urinalysis results did not affect pay. The primary outcome measure was the percentage of weekly urine samples negative for opiates. RESULTS: Most participants were male (71.4%), black or African American (80.1%), and cocaine dependent (71.4%). When missing urine samples were considered positive, XR-NTX plus Abstinence Incentives participants provided significantly more opiate-negative samples (81.3%, SD 39.0%) than XR-NTX participants (64.5%, SD 47.9%; OR 10.4, 95% CI 1.3-85.5; P = .03). When urine samples were not replaced, XR-NTX plus Abstinence Incentives participants provided significantly more opiate-negative samples (99.6%, SD 0.1%) than XR-NTX participants (85.0%, SD 35.7%; OR 147.6, 95% CI 6.3-3472; P = .002), Abstinence Incentives participants (91.9%, SD 27.3%; OR 121.7, 95% CI 4.8-3067; P =.004), and Usual Care participants (78.7%, SD 41.0%; OR 233.4, 95% CI 9.4-5814; P
Financial Support: This work was supported by the National Institute on Drug Abuse of the National Institutes of Health (R01DA019497 and T32DA07209). Alkermes, Inc. supplied the medication (Vivitrol®) at no cost.

First Name: Brantley

Last Name: Jarvis

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: NorthTide, LLC

ID: 159
Acceptability and feasibility of the tobacco, alcohol, prescription medication, and other substance use (TAPS) tool in US primary care patients

Angeline Adam, New York University School of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Other

Abstract: Aim: The TAPS Tool is a brief substance use screening instrument for primary care. This secondary analysis of data from the TAPS validation study describes its acceptability and feasibility, and examines the hypothesis that these may vary according to patient characteristics and screening format. Methods: Adults (N=2,000) from five primary care clinics completed interviewer-administered (IA-TAPS) and computer self-administered (SA-TAPS) format. Time, requests for assistance, and responses to a questionnaire addressing user-friendliness, comfort, and format preference were recorded. A multivariate analysis examined differences between subgroups based on education level (Results Almost all participants found the TAPS easy to understand (99%), and were comfortable answering (98%). 31% preferred IA-TAPS, 38% SA-TAPS, and 45% had no preference. The IA-TAPS was more frequently preferred by participants who were less educated (OR=1.79, 95% CI 1.39-2.29) or used prescription drugs (OR=1.41, 95% CI 1.01-1.95). The SA-TAPS was preferred by participants who used illegal drugs (OR=1.29, 95% CI 1.02-1.63)). The IA-TAPS required less time to complete (mean=2.4 minutes) than did the SA-TAPS (mean=4.5 minutes). Assistance was requested by 8% for the IA-TAPS, and by 25% for the SA-TAPS. SA-TAPS assistance was more frequently requested by those who had lower education (OR=2.09, 95% CI 1.63-2.68), were >65 (OR=2.79, 95% CI 1.98-3.92), or used prescription drugs (OR=1.44, 95% CI 1.05-1.98). Conclusion Both formats of the TAPS Tool were well accepted, but the SA-TAPS was preferred by subpopulations who may experience more stigma, while the IA-TAPS was preferred by those who may have more difficulty using a computer. The time required for the TAPS would be feasible in primary care settings, but older or less educated patients may need assistance with the self-administered version. Supported by the National Institute on Drug Abuse Clinical Trials Network (UG1DA013034/U10DA013727/UG1DA040317/UG1DA013035).

Financial Support: Supported by the National Institute on Drug Abuse Clinical Trials Network (UG1DA013034/U10DA013727/UG1DA040317/UG1DA013035).

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Degrees: MA MD Ph.D etc:: MD

Company Affiliation: New York University School of Medicine

ID: 160
Stakeholder perspectives on delivering pre-exposure prophylaxis (PrEP) to people who inject drugs

Angela Bazzi, Boston University School of Public Health

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: AIDS/Immune

Abstract: AIM: To explore the acceptability of antiretroviral pre-exposure prophylaxis (PrEP) and related intervention needs among people who inject drugs (PWID) in the U.S. Northeast, where heroin injection is increasing. PrEP is recommended for HIV prevention among PWID but intervention needs are understudied and prescribing and uptake remain low. METHODS: We recruited HIV-uninfected PWID and key informants (PrEP and social service providers) through community-based organizations (CBOs) in Boston and Providence. Qualitative interviews explored HIV risk, PrEP awareness, and perceived barriers to uptake and adherence. Thematic analysis identified key themes regarding PrEP acceptability and specific intervention suggestions. RESULTS: Among 33 PWID, median age was 36 years (range 24-62), 18 identified as male, and 20 injected at least daily. Common drugs injected were heroin (n=31), cocaine (n=24), crack (n=13), and methamphetamine (n=11). Key informants (n=12) worked as clinical providers (n=5) and directors/staff at CBOs including syringe exchange programs (n=7). PrEP awareness among PWID was low but interest was high, particularly for those experiencing overlapping injection and sexual HIV risks (e.g., due to sex work). PWID described low healthcare engagement and negative experiences; many preferred community-based organizations (CBOs) as potential sites for accessing PrEP information and services. Barriers to PrEP adherence included the “desperation” of drug withdrawal, unstable routines, homelessness, and incarceration. PWID and key informants provided specific suggestions regarding: (1) enhancing the feasibility of PrEP delivery via CBOs (e.g., employing trusted outreach workers and peer navigators), and (2) supporting adherence (e.g., encouraging morning dosing when routines are more consistent). CONCLUSION: Delivering PrEP to PWID will require specialized education and outreach efforts. PrEP uptake and adherence among PWID could be promoted using innovative intervention strategies delivered through CBOs, which are more acceptable and accessible for this population, and would enable bundling PrEP with other essential harm reduction and screening services.

Financial Support: The Boston-Providence Center for AIDS Research collaborative developmental grant (NIH grant P30AI042853), NIH/NIDA grant K01DA043412, and the BU Peter Paul Career Development Professorship.

First Name: Angela

Last Name: Bazzi

Degrees: MA MD Ph.D etc:: PhD, MPH

Company Affiliation: Boston University School of Public Health

ID: 161
Clinical and personality characteristics of problem and pathological gamblers with and without symptoms of adult ADHD

Molly Cairncross, University of Windsor

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Behavior

Abstract: Aims: Addictive behaviors such as problem gambling are often characterized by impulse control problems, and there is evidence for a high comorbidity with attention deficit-hyperactivity disorder (ADHD). This study examined the differential clinical and personality characteristics of problem and pathological gamblers who did and did not report clinically significant symptoms of adult ADHD. Methods: The sample consisted of 150 adults (n = 75 women) with current problem or pathological gambling (PPG) based on the National Opinion Research Centres DSM-IV Screen for Gambling Problems. Psychiatric characteristics were assessed by the SCID-IV and Conners' Adult ADHD Rating Scales. Personality characteristics were assessed using the Multidimensional Personality Questionnaire and UPPS Impulsive Behaviour Scale. Results: PPGs who reported symptoms of adult ADHD reported greater lifetime gambling severity ($t(148) = 2.79$, $p = .01$). They were more likely to endorse current alcohol abuse ($\chi2 = 4.16$, $p = .04$), and lifetime substance abuse ($\chi2 = 3.81$, $p = .02$) and substance dependence (e.g., sedatives, cannabis, opioids, and stimulants; $\chi2 = 3.81$, p .03). PPGs with symptoms of ADHD scored lower on positive emotionality ($F(1, 148)=20.72$, $p < .001$) and constraint (i.e. more risk-taking; $F(1, 148)=13.26$, p
Financial Support: Ontario Problem Gambling Research Centre (now Gambling Research Exchange Ontario)

First Name: Molly

Last Name: Cairncross

Degrees: MA MD Ph.D etc:: MA

Company Affiliation: University of Windsor

ID: 162
Prevalence of trauma exposure and post-traumatic stress disorder (PTSD) in rehabilitation center ANAS Le Courbat in France during first semester of 2016

Damien Maugé, CHRU de Tours, Clinique Psychiatrique Universitaire

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Alcohol

Topic: Epidemiology

Abstract: Aim: Psycho-trauma and addictions have a bi-directional link. Individuals suffering from alcohol use disorder (AUD) have a high prevalence of trauma exposure and Post-Traumatic Stress Disorder (PTSD). ANAS Le Courbat is a unique rehabilitation center in France where the admitted inpatients are in priority policemen suffering from AUD. Policemen are more exposed to such traumas. The objective of our study was to assess the prevalence of PTSD in patients admitted in this structure and its associated factors associated in order to create a specific group-therapy for these patients. Methods: This longitudinal study included all consecutive patients admitted to the Courbat during the first semester of 2016 (n=178). Out of the initial population, 156 met inclusion criteria at T1 (i.e., one week after admission) and 86 at T2 (two months after admission, i.e. before the end of the hospitalisation). At T1 and T2, patients completed self-administered questionnaires that assessed substance-related and addictive disorders (AUDIT, CAST, ICJE, YFAS), PTSD (CAPS, PCL-5) and comorbid physical, psychiatric and psychological conditions (ASRS, WURS, STAI, SF-12). Results: AUD was the main admission motive (93.9%), and burn-out the second one (6.1% in the overall population, 13.2% in policemen). PTSD prevalence was 53.5% at T1, with policemen having lower prevalence than other patients. At T1, PTSD was significantly associated with a higher prevalence of tobacco, alcohol, cannabis use disorder, food addiction, ADHD, depression and with lower quality of life. At T2, patients reported a significant improvement in PTSD severity and in depression, anxiety and quality of life scores (p
Financial Support: University François Rabelais of Tours France

First Name: Damien

Last Name: Maugé

Degrees: MA MD Ph.D etc:: MD

Company Affiliation: CHRU de Tours, Clinique Psychiatrique Universitaire

ID: 163
Predictors of recidivism among rural, incarcerated, substance-using women

Brittany Miller-Roenigk, University of Cincinnati

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Behavior

Abstract: Women are the fastest growing segment of the criminal justice population (Hall, Golder, Conley, & Sawning, 2013). General Strain Theory (Agnew, 1992) posits that strains (e.g., drug use and psychosocial factors), as well as injection drug use (IDU; Kirwan et al., 2015), are associated with recidivism. Women experience as much, if not more, strain than men (Broidy & Agnew, 1997). The intersection between injection drug use, psychosocial factors, and recidivism has been primarily studied among males in metropolitan contexts. AIM: The purpose of this study is to examine potential strains experienced by women (i.e., lifetime IDU, educational attainment, number of children, custody of children, partner status, and employment status), as predictors of six and 12 month recidivism among a sample of rural, incarcerated, substance using females. METHODS: This study was a secondary data analysis of female inmates from three rural Appalachia area jails, and included data from the baseline (n = 400), 6-month follow-up (n = 344), and available data from the 12-month follow-up (n = 321) samples. Data were analyzed using binary logistic regression. RESULTS: At the 6-month follow up, number of children (B = .21, p = .01; OR = 1.23, 95% CI = 1.04 – 1.45) and partner status (B = -.65, p = .02; OR = .52, 95% CI = .30 - .91) significantly predicted recidivism, such that having more children and being un-partnered predicted an increased likelihood of recidivism. At the 12-month follow-up, IDU (B = .6, p = .03; OR = 1.82, 95% CI = 1.06 – 3.03) significantly predicted recidivism, such that lifetime IDUs have an increased likelihood of being reincarcerated than non-IDUs. CONCLUSION: Findings suggest desistence from crime interventions for women should focus on reducing strains by including targeted programs for mothers, partnership skills development, and long-term injection drug use relapse prevention.

Financial Support: This secondary analysis was not financially supported, however, the parent study was funded by the National Institute on Drug Abuse (NIDA). The National Institutes of Health (NIH) grant numbers for the parent study and an associated study are: 5R01DA033866-02 (Staton, PI); R01DA033866-04S1 (Peteet, PI).

First Name: Brittany

Last Name: Miller-Roenigk

Degrees: MA MD Ph.D etc:: MA

Company Affiliation: University of Cincinnati

ID: 164
Distinct measures of distress tolerance predict success for different health behaviours

Daisy Thompson-Lake, Queen Mary University of London

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Other

Abstract: Aim: Measures of distress tolerance (DT) have been used to try and predict successful behaviour change in stopping cigarette smoking and substance use. However, the literature has yielded inconclusive results as to whether these measures are able to accurately measure DT, or if they relate to successful behaviour change. We aim to investigate whether distinct measures of DT can predict success in different behaviours. Method: The current study examined successful behaviour in alcohol use disorder (AUD; N=81) and in individuals with weight problems (WP; N=74) who had successfully achieved and maintained a behaviour change versus those who had not. A battery of six DT measures (psychological, physical, and self-report) and four life stress measures (depression, quality of life, loneliness and lifetime traumas) were administered. Logistic regression was used to assess if measures could predict successful behaviour in the two groups. Associations of DT and life stress were assessed to determine if the measures related to distress. Results: Logistic regression indicated that three DT measures differentiated successful and unsuccessful behaviour for AUD subgroups, i.e., the model significantly predicted success with 79% accuracy ($p < 0$ .001). None of these three measures had any discriminatory value for the obesity population. However, a different measure predicted successful weight loss in 68% of the cases ($p = .02$). A new brief measure (Persistence Questionnaire) showed promise for predicting success in combined subgroups ($p = .008$, OR=1.3, 95% CI= 1.1-1.5). Lastly, life stress measures differed between the subgroups in both study populations (p
Financial Support: UKCTAS

First Name: Daisy

Last Name: Thompson-Lake

Company Affiliation: Queen Mary University of London

ID: 165
The impact of substance use disorders on diabetes quality of care measures

Blanca Noriega Esquives, University of Miami

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Other

Abstract: Aims: To determine the impact of substance use disorders (SUDs) on the achievement of diabetes quality of care measures in patients receiving care at the University of Miami Health System. Methods: We conducted a cross-sectional analysis of 5 years of electronic health data for 72,060 adults, aged 18-75, with diabetes who were seen at the UHealth system. The diagnostic variables were based on ICD-9 codes. The achievement of diabetes quality care goals was defined by the Healthcare Effectiveness Data and Information Set (HEDIS) measures: hemoglobin A1C (< 8 %), low-density lipoprotein cholesterol (< 1 00 mg/dL), blood pressure (BP) (< 1 40/90 mm Hg), eye-exam performed, and receiving medical attention for nephropathy. Descriptive analyses summarized the characteristics of the total sample. Logistic regression was used to examine the impact of SUDs on the achievement of each HEDIS measures as well as the summary measure (all five measures combined). Results: Overall, 11.4% of patients with diabetes (n = 8195, 58.7±10.2 years old) had a SUD. Compared with their non-SUDs counterparts, more patients with diabetes and comorbid SUDs were male (63.3% vs. 49.2%), Hispanic (43% vs 42.1%) or Black (32.8% vs 28.3%), had public insurance (54.5% vs 45.8%) or were uninsured (3.2% vs 1%), had HIV (6% vs 2.1%) or Hepatitis C (8.2% vs 2.9%) (All p < 0 .001). Having a SUD was associated with good BP control (p=0.004), an eye-exam performed (p < 0 .001) and receiving medical attention for nephropathy (p < 0 .001) as well as the summary measure (p < 0 .001). Conclusions: Patients with diabetes and SUDs are more complex patients due to multiple co-existing conditions. Although having diabetes and SUDs does not necessarily predispose patients to receiving poorer care, there is a potential to improve glycemic control and lipid management in these patients. Future studies could examine the factors associated with not achieving specific diabetes care goals.

Financial Support: Ms. Noriega Esquives is an MSPH student and her involvement is part of her curriculum. All other authors are supported by UG01 DA013720.

First Name: Blanca

Last Name: Noriega Esquives

Degrees: MA MD Ph.D etc:: MD

Company Affiliation: University of Miami

ID: 166
Amplitude of demand predicts abstinence among treatment-seeking smokers with elevated depressive symptoms: Further evidence of its internal structure

Carla López Núñez, Universidad Loyola Andalucia

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Treatment

Abstract: AIM: Although the individual demand indices of the Cigarette Purchase Task (CPT) have demonstrated significant utility in guiding both laboratory research and treatment, recent studies have indicated that nicotine reinforcement might be better characterized by a bi-factorial structure: Persistence (insensitivity to pricing) and Amplitude (volumetric consumption). Unfortunately, no study to date has examined whether this bi-factorial solution can be applied to a sample of depressed individuals. Further, its value as a clinical predictor of abstinence outcomes is unknown. The present study examined the internal structure of the CPT and assessed whether Amplitude and Persistence predict treatment response better than the individual demand indices among a sample of smokers with elevated depressive symptoms. METHODS: A principal component analysis (PCA) was conducted to explore the CPT´s internal structure. The sample included a dataset of 211 smokers endorsing depressive symptomatology [72% female: BDI-II M = 24.36, SD = 10.71]. Analyses of the predictive validity were restricted to a subsample of 97 participants [73% female: BDI-II M = 28.23, SD = 9.42] receiving two depression-focused treatments for quitting smoking, that is: Cognitive-Behavioral Treatment (CBT) plus Behavioral Activation (BA) and CBT plus Contingency Management (CM). RESULTS: The PCA confirmed the CPT´s internal structure comprising: Persistence (breakpoint, Omax, Pmax, elasticity) and Amplitude (intensity of demand). Convergent validity was obtained through significant associations between the two latent factors and smoking variables. Amplitude of demand negatively predicted the number of days of continuous abstinence at the end of treatment [R2 = .20; F(9, 85) = 2.40, p = .018]. CONCLUSION: Nicotine reinforcement in the population of cigarette smokers with depression can be characterized by a bi-factorial structure. The demand amplitude provides information as to which patients benefit less from smoking cessation treatments incorporating BA and CM components. Targeting specific facets of nicotine reinforcement might improve cessation outcomes.

Financial Support: Spanish Ministry of Economy and Competitiveness (MINECO16-PSI2015-64371-P) and European Regional Development Fund

First Name: Carla

Last Name: López Núñez

Company Affiliation: Universidad Loyola Andalucia

ID: 167
How representative are insomnia clinical trials?

Timothy Roehrs, Henry Ford Health System

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Sedative-Hypnotics

Topic: Treatment

Abstract: AIM: Clinical trials of pharmacological treatments for insomnia have specific inclusion and exclusion criteria, including polysomnographic (PSG) criteria for sleep onset, sleep maintenance and sleep efficiency. The question arises as to how representative these subjects are of the broader insomnia population. We systematically counted reasons for exclusion during recruitment to a five-year NIH-funded zolpidem efficacy trial in chronic insomnia. METHODS: Persons (N=116), aged 32-65 yrs, meeting DSM-IVR criteria for insomnia and a PSG sleep efficiency of 85%, no other primary sleep disorders, no psychiatric diseases or drug dependency and in good health were recruited to participate in a 12 month clinical trial of nightly use of zolpidem 10 mg or placebo. Advertisements in newspapers, hospital intranet news, and hospital clinics solicited individuals with chronic difficulty falling asleep, staying asleep, or awakening too early. Screening was conducted through an initial telephone interview followed by a clinic visit that included a brief physical, medical and drug use history, laboratory blood/urine testing, psychiatric screen (SCID), and clinical PSG. All subjects screened beyond the phone screen signed an informed consent. RESULTS: For 116 participants 2886 telephone interviews were conducted with 25% declining after hearing study specifics. Of those with continued interest 25% reported present (within past year) mental health problems, 18% chronic unstable health problems, 14% past or present drug/alcohol abuse, and 14% did not meet DSM-IVR criteria for insomnia. Of the remaining 410, 294 (72%) were excluded. Among those excluded 30% did not report for PSG, 22% failed the PSG (i.e. AHI>10, PLMAI> 10, or SE >85%), 17% failed the SCID, 14% failed the health screen, and 11% a drug screen. CONCLUSION: These data suggest persons entering an insomnia clinical trial are a highly selected sample. They show, while insomnia is comorbid with other conditions, clinical trials are carried out in

Financial Support: NIDA, grant#: R01DA17355 awarded to Dr. Roehrs.

First Name: Timothy

Last Name: Roehrs

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Henry Ford Health System

ID: 168
NKTR-181 demonstrates low abuse potential in recreational opioid users in two double-blind, randomized crossover human abuse potential studies

Eileen Rodriguez, Curry Rockefeller Group

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Dependence

Abstract: Aim: The rate of CNS entry is an important factor in eliciting euphoria and determining the abuse potential and safety of opioids. NKTR-181, a new chemical entity, is a full mu-opioid receptor agonist designed to have a slow rate of entry into the CNS, regardless of route of administration, compared with conventional opioids. Human abuse potential (HAP) of NKTR-181 has been evaluated in two separate double-blind, randomized, placebo-controlled, crossover studies. Methods: In both studies, recreational opioid users received single oral doses of NKTR-181 (100, 200, 400mg in solution in Study I and 400, 600, 1200mg in tablets in Study II), oxycodone (40mg in solution in Study I and 40 and 60mg in over-encapsulated tablets in Study II), and respective matching placebo. Abuse potential was evaluated using visual analog scales of Drug Liking, High and other subjective measures by assessing the time course and magnitude of effects. Results: In Study I and Study II, 42 and 54 subjects completed all treatments, respectively. The Drug Liking Emax for the NKTR-181 Phase 3 therapeutic dose range (100-600 mg) was substantially slower onsetting and significantly lower than the oxycodone doses. The rate of rise and extent of Drug Liking onset for all NKTR-181 doses, including a supratherapeutic dose of 1200mg, was significantly lower than the oxycodone doses in the critical first 1-2 hours. NKTR-181 400mg showed consistent mean Drug Liking and High Emax in Studies I (62.0 and 21) and II (62.3 and 22.6). Both trials demonstrated significantly lower scores than those for oxycodone 40mg ($P < 0.0001$). For the supratherapeutic NKTR-181 dose (1200mg), Drug Liking and High Emax were significantly lower than oxycodone 60mg ($P < 0.0071$). Conclusion: In both HAP studies, the effects of NKTR-181 on subjective and physiological measures of abuse potential were slower onsetting and lower in magnitude compared to a common Schedule II opioid.

Financial Support: Nektar Therapeutics

First Name: Eileen

Last Name: Rodriguez

Company Affiliation: Curry Rockefeller Group

ID: 169
Abuse liability assessment of ENDS: What is the right level to support a public health benefit?

Sarah Baxter, RAI Services Company

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Dependence

Abstract: AIM The Family Smoking Prevention and Tobacco Control Act requires FDA to evaluate new tobacco products to assess the likelihood of initiation of use, dependence, and persistence of use and cessation. Important to understanding these factors are the product-specific factors that may influence patterns and probability of use. This area of research is referred to as abuse liability assessment by FDA's Center for Tobacco Products, and abuse potential assessment by FDA's Center for Research and Evaluation of Drugs. METHODS Abuse liability assessment of drugs routinely includes evaluation of a drug in human studies that typically measures subjective effects including product liking, pharmacokinetics, and various physiological parameters. In recent years, these methods have also been adapted to compare differing formulations of products that contain the same pharmacologically-active ingredients. The first such reported systematic application of the human abuse liability (HAL) methodology to electronic nicotine delivery systems (ENDS) was to evaluate non-menthol Vuse Solo ENDS. The present study is a continuation of that evaluation to examine menthol Vuse Solo ENDS. RESULTS Results from this study indicate that product liking, intent to use again, and early nicotine uptake (AUC0-15) for menthol Vuse ENDS fell between usual brand combustible cigarette (high HAL) and nicotine gum (low HAL). Nicotine Cmax and overall uptake (AUC0-360) were lower relative to both comparators. The menthol results are aligned with our previous findings and collectively suggest that HAL for Vuse Solo ENDS is lower than combustibles and somewhat higher than nicotine gum. CONCLUSION The HAL methodology appears to provide a useful approach to assess the impact of factors such as positive subjective measures, the maximum absorption and speed of nicotine delivery, and flavoring. Additionally, this approach seems well-suited to address whether the product is liked enough and has sufficient HAL to support the public health goal of migration from combustible cigarettes to ENDS.

Financial Support: This research was funded by Reynolds American Inc.

First Name: Sarah

Last Name: Baxter

Degrees: MA MD Ph.D etc:: Ph.D

Company Affiliation: RAI Services Company

ID: 170
HIV health care behaviors in substance users during patient navigation with and without contingent financial incentives

Maxine Stitzer, Johns Hopkins Bayview Medical Center

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Treatment

Abstract: Aims: Effective interventions are needed to improve adherence to health care behaviors among persons with HIV and substance use. This secondary analysis from a 3-arm randomized multi-site study [CTN Project HOPE] examines whether outcomes are improved when contingent financial incentives are added to a patient navigation (PN) intervention. Methods: Out-of-treatment substance users identified in a hospital setting were randomized to a 6-month PN intervention with (PN+ CM; N = 271) or without (PN: N = 266) contingent financial incentives targeting potential behavioral mediators of viral load suppression. Incentives were available for attending up to 4 HIV care visits ($180), for providing evidence of an active HIV medication prescription ($170) and for meeting viral suppression criteria (£200 copies/mL; $150). Behavior frequencies were compared for PN vs PN+CM and related to viral suppression at 6 months. Results: Study participant mean age was 45 (SD 10); 78% were Black; 33% female. 59% had an alcohol use disorder; 77% used one or more drugs including marijuana (45%), stimulants (71%) and opioids (22%). Median HIV care visits over 6 months was 3 (IQR 2-4) for PN+CM versus 1.5 (IQR 0-3) for PN ($p < .0001$); median validated medication checks was 4 (IQR 2-6) for PN+CM versus 1 (IQR 0-3) for PN ($p < .0001$). Number of days from randomization to the first PN visit, first health care visit and first validated medication check were significantly shorter for PN+CM than for PN. Viral suppression at 6-months (43% PN; 50% PN+CM) was related to the number of target behaviors completed for both HIV care visits ($c2(1) = 7.69$ $p=0.006$) and validated medication checks ($c2(1) = 8.49$, $p=0.004$). Conclusion: Results support use of incentives to increase linkage to care and performance of key health care behaviors that may result in improved HIV outcomes in substance users.

Financial Support: The project HOPE clinical trial and subsequent manuscript preparation activities were funded under NIDA Drug Abuse Treatment Clinical Trials Network cooperative agreements UG1DA013034, UG1DA015815 and UG1DA013720.

First Name: Maxine

Last Name: Stitzer

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Johns Hopkins Bayview Medical Center

Contact Title: Professor of Psychiatry

ID: 171
A comparison between the ICD-10 and DSM-5 diagnostic criteria for sedative, hypnotic and anxiolytic use disorders

Daniela Curado, Federal University of São Paulo

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Sedative-Hypnotics

Topic: Dependence

Abstract: AIM: Long-term use of hypnotics, such as benzodiazepines and Z drugs, is a worldwide public health concern, associated to deleterious side effects such as cognitive and motor deficits and the development of dependence. The DSM-5 has made an important progress by specifying diagnostic criteria for sedative, hypnotic or anxiolytic (SHA) use disorders, however, they still require further consideration, given that it's a new version and cultural and social aspects that may influence diagnosis must be assessed. METHODS: Eighty-six chronic hypnotic users (>3 months) were recruited and screened with a psychiatric interview, according to the ICD-10 guidelines for substance use disorders and DSM-5 criteria for SHA use disorders. Descriptive analyses were conducted in order to characterize our sample following both guidelines. RESULTS: Participants were mostly women (84.1%), with mean age of 49.5 (±12.3), currently using hypnotics for 46 (±58.2) months, mainly zolpidem (42.1%) and clonazepam (33.0%). According to the ICD-10, 67.4% of our sample was dependent on hypnotics, while only 34.5% were declared as having SHA use disorders according to the DSM-5. CONCLUSION: These preliminary findings suggest that the DSM-5 considers less people as dependent to SHA, probably underdiagnosing the condition, at least in a sample with similar characteristics to ours. We highlight the fact that the DSM-5 considers tolerance and abstinence as diagnostic criteria only when the medication is used without medical supervision. This might be a problem since most users have a prescription and that does not guarantee adequate medical supervision, being, therefore, subjective criteria. Since the guideline is still very recent, more studies are needed to identify which aspects of the new criteria are responsible for these differences.

Financial Support: FAPESP

First Name: Daniela

Last Name: Curado

Degrees: MA MD Ph.D etc:: BA

Company Affiliation: Federal University of São Paulo

ID: 172
Relationship between substance use and sexual network characteristics among men who have sex with men and transgender women in Tijuana, Mexico

Heather Pines, University of California San Diego

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Epidemiology

Abstract: AIM: We examined the hypothesis that substance use is associated with sexual network characteristics that influence HIV transmission dynamics among men who have sex with men (MSM) and transgender women (TW) in Tijuana, Mexico. METHODS: From 03/2016-09/2017, 397 HIV-negative MSM and TW were recruited via venue-based and respondent-driven sampling. Interviewer-administered surveys collected information on hazardous alcohol consumption (Alcohol Use Disorders Identification Test score ≥8) and illicit drug use (past month), as well as participants' egocentric sexual networks (≤20 male or transgender female partners in the past 4 months). Logistic regression was used to determine whether hazardous alcohol consumption and illicit drug use are associated with sexual network structure and composition adjusting for recruitment method, age, sexual orientation, education, and duration of residence in Tijuana. RESULTS: Participants had a median age of 39.0 years (interquartile range [IQR]=29.0-46.0), mostly identified as male (97%) and bisexual (53%) or gay (34%), and reported high rates of hazardous alcohol consumption (54%) and illicit drug use (53%). Participants' egocentric sexual networks had a median cumulative degree (i.e., number of partners in the past 4 months) of 2.0 (IQR=1.0-4.0) and a median momentary degree (i.e., number of ongoing partners on the day of the interview; momentary degree >1 indicates concurrency) of 1.0 (IQR=1.0-2.0). Hazardous alcohol consumption was associated with reporting a cumulative network degree >1 (adjusted odds ratio [AOR]=2.14, 95% confidence interval [CI]: 1.40-3.28), a momentary network degree >1 (AOR=1.80, 95% CI: 1.17-2.77), networks with ≥1 HIV-positive/status unknown partner (AOR=1.65, 95% CI: 1.09-2.49), and networks ≥1 with condomless anal intercourse partner (AOR=2.05, 95% CI: 1.31-3.20). Illicit drug use was associated with reporting networks with ≥1 transactional sex partner (AOR=3.09, 95% CI: 1.95-4.91). CONCLUSION: Interventions addressing hazardous alcohol consumption and illicit drug use may help interrupt HIV transmission within the sexual networks of MSM and TW in Tijuana.

Financial Support: Supported by grants from the National Institute on Drug Abuse: K01DA04054 and R01DA037811.

First Name: Heather

Last Name: Pines

Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: University of California San Diego

ID: 173
Predictors of smoking cessation during pregnancy

Lauren Micalizzi, Brown University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Perinatal

Abstract: Aim: Maternal cigarette smoking during pregnancy is associated with long-term adverse health outcomes for both women and their children. As such, identifying women who are at risk for smoking throughout the duration of their pregnancy may help to decrease tobacco-related illness and save billions of dollars in health care expenditures (WHO, 2017). Methods: Women (N=162) were recruited based on birth record report in which mothers indicated smoking during pregnancy (Knopik et al., 2015). Of these women, 87 quit smoking prior to the third trimester and 75 women continued to smoke throughout. A latent class analysis was conducted to identify underlying subgroups based on smoking initiation (i.e., age at first use) and uptake (i.e., age when first used daily for 30 days, months after first use progressed to daily use). Results: Results revealed four subgroups within the sample: (1) early adulthood initiators with quick uptake; (2) middle childhood initiators with delayed uptake; (3) early adolescent initiators with quick uptake; and (4) late-adolescent initiators with delayed uptake. Logistic regression was used to assess the impact of latent class membership, partner smoking status, nicotine dependence, lifetime depression, and demographic variables on whether or not mothers were able to quit prior to the third trimester of pregnancy. Women with more severe nicotine dependence (odds ratio [OR]= .77 [.62-.97]) and those that had a lifetime depression diagnosis (OR= .45 [.20-.97]) were less likely to quit smoking during pregnancy. Surprisingly, women who had a smoking partner were more likely to quit (OR= 2.92 [1.36-6.30]). The effect of middle childhood initiation with delayed onset approached significance (OR= .36 [.13-.1.01]). Conclusion: These findings indicate that women who have a lifetime depression diagnosis and those with more severe nicotine dependence are at particular risk for continuing to smoke throughout their pregnancies and should be targeted for intervention.

Financial Support: DA023134 and DA 17671 to Valerie S. Knopik. Drs. Micalizzi and Brick are supported by T32 DA016184 (Rohsenow) and T32 MH019927 (Spirito), respectively.

First Name: Lauren

Last Name: Micalizzi

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Brown University

ID: 174
Impact of an employee-focused program for tobacco addiction treatment among employees of a French healthcare institution

Marc Auriacombe, Université de Bordeaux

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Treatment

Abstract: Aim: To evaluate an employee-focused program for tobacco addiction treatment initiated in 2012 for employees of a French Psychiatric hospital where prevalence of tobacco use is high. Method: Cross-sectional self-questionnaire survey among all employees exploring Tobacco and other substance uses. Problematic use was screened with an adaptation of CAGE. The questionnaire was sent by the employee health service. The questionnaire also explored participation in the employee-focused program for tobacco cessation. Results: Response rate was 17.5% (316/1803). Prevalence of smokers was 41.3%, of which 83.7% with tobacco use disorder. Three quarters (74.5%) of active smokers wanted to reduce or stop tobacco use within 5 years. However, 65.9% of current or past smokers never received tobacco cessation help. The majority of respondents (90,5%) were aware of the employee-focused program for tobacco cessation. Among those with tobacco use disorder, 27% attended the employee-focused program, and the majority (69,2%) engaged in addiction treatment follow-up. Conclusion: Tobacco addiction is frequent among employees of healthcare institutions and treatment access is low. In a former region-wide study, we showed that only 4.2% of employees with tobacco addiction accessed treatment lifetime. This study supports that the employee-focused program was able to increase access to tobacco addiction treatment.

Financial Support: Internal funds from University of Bordeaux and from Ch. Perrens Hospital.

First Name: Marc

Last Name: Auriacombe

Degrees: MA MD Ph.D etc:: M.D., M.Sc.

Company Affiliation: Université de Bordeaux

ID: 175
Neuroactive steroid and pregnenolone levels in men and women with cocaine use disorder

Verica Milivojevic, Yale University School of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Stimulants

Topic: Dependence

Abstract: Aims: Neuroactive steroids (NAS) may play a role in addiction, with observed increases in response to acute stress and drug use, but decreases with chronic drug use, suggesting that NAS neuroadaptations may occur with chronic substance use. However, a profile of NAS levels in addicted individuals has not been systematically examined. Here, we evaluated a panel of NAS in men and women with cocaine use disorder (CUD) who participated in a clinical laboratory study of progesterone. Methods: 46 CUD individuals were enrolled in a randomized placebo-controlled clinical trial to evaluate progesterone effects on stress response and drug craving. On day 5 of a 7-day inpatient treatment regimen of 400mg/day progesterone (15M / 8F) or placebo (14M / 9F), plasma levels of NAS known to be influenced by progesterone (allopregnanolone, pregnanolone), and NAS not influenced by progesterone (androstanediol, testosterone, dehydroepiandrosterone [DHEA] and the NAS precursor, pregnenolone) were analyzed using highly sensitive gas chromatography/mass spectrometry (GC/MS). First, NAS levels were assessed as a function of progesterone vs placebo treatment using independent t-tests, and gender differences were examined using ANOVAs. Second, linear regression models assessed whether each of the NAS were associated with severity of cocaine use. Results: Progesterone relative to placebo significantly increased the GABAergic NAS allopregnanolone and pregnanolone in both CUD men and women. Levels of pregnenolone, testosterone, its GABAergic metabolite androstanediol, and the non-GABAergic DHEA were unaffected by progesterone treatment, and testosterone and androstanediol levels were significantly higher in men than women. More importantly, lower pregnenolone and androstanediol levels were associated with greater severity of cocaine use. Conclusions: Findings highlight distinct NAS synthesis pathways, and that chronic cocaine use may specifically affect GABAergic NAS pregnenolone and androstanediol. As such, targeted strategies that normalize GABAergic NAS adaptations in CUD need further exploration for their addiction treatment potential.

Financial Support: P50-DA016556; P60AA03510; 5T32DA007238-24

First Name: Verica

Last Name: Milivojevic

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Yale University School of Medicine

ID: 176
Gender-specific facilitators and barriers to accessing an overdose prevention intervention: A rapid ethnographic study

Jade Boyd, British Columbia Centre on Substance Use

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Prevention

Abstract: AIM: North America's opioid epidemic is a major driver of preventable morbidity and mortality, with fentanyl-adulterated opioids driving rapid increases in fatal overdose. While globally it is estimated that women comprise about one quarter of all people who inject drugs (PWID), they experience disproportionate levels of drug-related harm. Due to a sharp rise in overdose deaths in 2016 in British Columbia (BC), Canada, a public health emergency was declared and a range of novel overdose prevention interventions have been implemented in Vancouver, BC on an emergency basis, including low-threshold supervised consumption facilities, known as overdose prevention sites (OPS). Though research has revealed that the use of illegal drugs is gendered, barriers faced by women accessing OPS are not well known – this study addresses this gap. METHODS: This study draws from rapid ethnographic fieldwork conducted in Vancouver between December 2016 and April 2017 on the implementation of OPS during an overdose crisis. Data collection included approximately 185 hours of observation and in-depth interviews with 72 PWID recruited directly from these sites, 43 of whom identified as women. Data were analyzed thematically using NVivo and with attention to structural vulnerability. RESULTS: Women participants experienced an array of unique gender-specific challenges and barriers that can contribute to adverse health outcomes. Operational models of low-threshold OPS facilitated access through the toleration of gendered drug use practices such as peer assisted injection and injecting partnerships. However, women participants also described OPS as masculinized spaces (e.g., male dominated and fraught with the possibility of violence), which served as a significant barrier for some participants' continued access. CONCLUSION: In order to intervene effectively on overdose morbidity and mortality among marginalized women who inject drugs, overdose prevention strategies would benefit by expanding to include gender-specific services as an essential part of public health responses to the overdose epidemic.

Financial Support: This research is supported US National Institutes of Health (R01DA044181)

First Name: Jade

Last Name: Boyd

Degrees: MA MD Ph.D etc:: Ph.D

Company Affiliation: British Columbia Centre on Substance Use

ID: 177
Sex differences among patients with opioid use disorder undergoing medically supervised withdrawal

Aimee Campbell, Columbia University and NYSPI

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Sex Differences

Abstract: Aim: Sex differences are commonly observed among individuals with substance use disorders (SUD) but research remains limited. Given the ongoing opioid epidemic in the U.S. and disparities in treatment outcome by sex, comprehensive characterization of men and women with opioid use disorder (OUD) is warranted. Methods: Baseline data was drawn from participants (N=570) undergoing medically supervised withdrawal entering a multisite randomized controlled trial conducted in NIDA's National Drug Abuse Treatment Clinical Trials Network comparing extended release naltrexone to buprenorphine for OUD. Bivariate analyses explored sex differences on a comprehensive set of variables across demographic, SUD, psychiatric and medical domains. Results: Compared to men, women were younger (M=32.4 vs. M=34.5; p=.02) and less likely to be employed (20.1% vs. 29.7%; p=.01) and more likely to be living with a sexual partner (34.3% vs. 28.9%; p
Financial Support: NIDA UG1 DA013035

First Name: Aimee

Last Name: Campbell

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Columbia University and NYSPI

ID: 178
N-acetylcysteine for adolescent cannabis use disorder: Do depressive symptoms moderate abstinence outcomes?

Rachel Tomko, Medical University of South Carolina

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Treatment

Abstract: Aim. Adolescents are at greater risk for developing cannabis use disorder (CUD) than adults and developmentally appropriate treatments are essential. N-Acetylcysteine (NAC) is an over-the-counter antioxidant thought to regulate glutamate transmission. NAC was shown to significantly enhance cannabis abstinence in a sample of adolescents (ages 15-21; Gray et al., 2012), and though not significant, the size of this effect was similar in a subsample of 18-21 year olds in an adult trial (Gray et al., 2017). Approximately 40% of the adolescents who received NAC responded favorably in the adolescent trial (relative to ~20% on placebo) and research is necessary to determine who is likely to benefit from NAC. Methods. Secondary analyses from the adolescent NAC trial were conducted to determine whether depressive symptoms at baseline moderated cannabis abstinence outcomes, as NAC has also been shown to effectively reduce symptoms of depression. It was hypothesized that NAC may be more effective among adolescents with depressive symptomology, as depression may maintain cannabis use. Adolescents seeking treatment for CUD (N=74) were recruited for an 8-week clinical trial and were randomly assigned to receive NAC or placebo, in addition to abstinence-based contingency management. Using generalized estimating equations, the interaction between baseline depressive symptoms and treatment condition (NAC vs. placebo) was used to predict the probability of positive weekly urine cannabinoid (11-nor-9-carboxy-Δ9-tetrahydrocannabinol) tests. Main effects of treatment, depression, week, baseline urine cannabinoid level, and baseline motivation to reduce cannabis use were also included in the model. Results. Results indicated that NAC was negatively associated with positive urine cannabinoid tests during treatment and that the difference between NAC and placebo was stronger for adolescents who had greater baseline depression (b = -0.09, SE=0.04, p=0.025). Conclusion. These secondary findings, though preliminary, suggest a need for further examination of the role of NAC for treatment of adolescent CUD which is exacerbated by depression.

Financial Support: Supported by grants from NIDA (R01DA026777, R01DA042114, U01DA031779, K23DA042935).

First Name: Rachel

Last Name: Tomko

Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: Medical University of South Carolina

ID: 179
A data analysis strategy for rodent self-administration studies

Sharon Rowton, Covance Laboratories

Abstract Category: Theoretical/Commentary

Abstract Detail: Animal Study

Drug Category: Sedative-Hypnotics

Topic: Other

Abstract: Aim The final Food and Drug Administration (FDA) guidance on the Assessment of Abuse Potential of Drugs published in January 2017 recommends self-administration studies for the nonclinical assessment of abuse potential of CNS-active drugs and/or its major metabolites to be conducted under Good Laboratory Practices (GLP). The guidance states that a positive control drug should maintain self-administration levels in challenge sessions that are statistically significantly different from vehicle. Self-administration of stimulants has been widely characterized in several animal species, and the corresponding data analysis is typically straight forward. In rodents, behavioural responses maintained by cocaine or amphetamine are well established, with relatively low within and inter subject variability. However, for other drug classes, such as sedatives, a greater degree of variability between animals and test sessions exists. As such, for drugs as midazolam and ketamine, standard statistical analysis is either too sensitive, or not sensitive enough to support characterization of the biological response. The aim was to review and develop best practices of study design and associated statistical analysis strategy under GLP, in order to identify factors that must be assessed on the evaluation of patterns of response over and within substitution sessions. Methods Multiple data sets were scientifically reviewed and statistically analysed using a range of methodology including both independent vehicle groups and extinction as a baseline. Individual and combined sessions were evaluated for amphetamine, ketamine and midazolam under various FR schedules. The scientific and statistical conclusions were compared for concordance in order to identify the methodology which provided the highest level of agreement. Results and Conclusion In conclusion, A one size fits all approach is not possible. Individual animal data assessment is paramount. Vehicle group required for comparison. Use a repeated measures statistical approach. Confidence limits are more appropriate than probability (p) values. Evaluation of the pattern of response between sessions is required.

Financial Support: None

First Name: Sharon

Last Name: Rowton

Degrees: MA MD Ph.D etc:: Ph.D

Company Affiliation: Covance Laboratories

ID: 180
HIV clinic-based buprenorphine versus methadone impact on the HIV care continuum in Vietnam: BRAVO study 6-Month outcomes

Philip Todd Korthuis, Oregon Health & Science University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: AIDS/Immune

Abstract: Aims: Integrating methadone or buprenorphine for opioid use disorder (OUD) into HIV care improves antiretroviral therapy [ART] uptake and HIV viral suppression in observational studies, but has not been compared in randomized trials. We hypothesized that HIV-infected persons with OUD randomized to buprenorphine versus methadone would experience comparable 6-month outcomes. Methods: We report baseline characteristics and 6- month outcomes of heroin use, ART receipt, and HIV viral suppression in the first 221 participants randomized to clinical-based buprenorphine versus referral for methadone in 6 Vietnam HIV clinics. We assessed substance use with urine toxicology screening; ART receipt from medical records, and HIV viral suppression (HIV RNA ≤ 200 copies/mL) at baseline and 6-months. Mixed linear regression assessed associations between treatment group and outcomes over time in intention-to-treat analyses. Results: Of 221 participants randomized to buprenorphine (n=110) or methadone (n=111), 96% were male, 48% employed, with mean age 37.4 (SD 8.2) years and 7.1 (SD 5.7) years since HIV diagnosis. Mean CD4 count was 392 (SD 228); 35% were hepatitis C positive; 100% tested positive for heroin and 15.8% for methamphetamines. Six-month retention on medication was 51.2% for buprenorphine and 61.7% for methadone (p=0.20). Six-month heroin use decreased with both buprenorphine and methadone (60% vs. 70%, p=.25). ART receipt increased from 61.5% to 90.4% for buprenorphine and 62.7% to 96.6% for methadone (p=0.18). HIV viral suppression improved from 70.1% to 89.1% for buprenorphine and 75.5% to 96.7% for methadone (p=0.11). Baseline methamphetamine use was associated with continued heroin use (OR 2.6, 95% CI 1.17, 5.78), decreased ART receipt (OR 0.36, 95% CI 0.21, 0.63) and decreased HIV viral suppression (OR 0.46, 95% CI 0.23, 0.92) at 6 months. Conclusions: Both buprenorphine and methadone improved ART receipt and HIV viral suppression despite modest decreases in heroin use. Concomitant methamphetamine use adversely impacts the HIV care continuum.

Financial Support: R01DA037441, UG1DA015815

First Name: Philip Todd

Last Name: Korthuis

Degrees: MA MD Ph.D etc:: MD, MPH

Company Affiliation: Oregon Health & Science University

ID: 181
Risk of substance use and mental health outcomes among military spouses and partners

Jessica Kulak, State University of New York at Buffalo

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Epidemiology

Abstract: Aims: Spouses/partners of military service members face unique stressors compared to civilians. However, multiple sources point out that evidence on substance use among military spouses is rare, and there is a need for more research directed specifically at spouses. Therefore, the aims of this project were to characterize substance use among a sample of military spouses/partners, and explore the relationships between their substance use/mental health and their military partner's service experiences. Methods: Data were drawn from the baseline wave of Operation: SAFETY (Soldiers And Families Excelling Through the Years), an ongoing longitudinal study examining health among U.S. Army Reserve/National Guard soldiers (USAR/NG) and their partners. The present sample was comprised of 344 civilian spouses married/living as married to current USAR/NG soldiers. Paired t-tests were used to compare mean spouses' substance use and mental health as a function of spousal soldier's 1) deployment status (no/yes); 2) number of deployments (one/multiple); and 3) deployment operation (Enduring Freedom (OEF)/Iraqi Freedom (OIF)/New Dawn (OND), compared to all others). Results: Civilian spouses/partners of USAR/NG soldiers currently smoked cigarettes (15.1%), met criteria for problem drinking (12.5%), and used illicit (7.0%) and nonmedical use of prescription drugs (7.6%). Mental health and substance use did not statistically differ by deployment status or times deployed. Spouses whose soldier had OEF/OIF/OND deployments had higher mean depression ($p < 0$ .05) and marginally higher anger scores ($p=0.08$). Current tobacco use was highest for spouses of soldiers with non-OEF/OIF/OND deployments ($p=0.05$). Conclusions: Civilian spouses/partners of USAR/NG soldiers are at risk of substance use and mental health conditions. Our findings suggest that simply being married to a soldier is stressful, and whether or not that soldier was deployed, or the number of deployments, may not matter. These findings underscore the importance of support initiatives focusing on all military spouses, not just those of deployed soldiers.

Financial Support: Award R01-DA034072 to Gregory G. Homish. Also supported by the National Institute on Alcohol Abuse and Alcoholism award number T32AA007583 (PI: KEL) in support of JAF, and by the Health Resources Services Administration award number T32HP30035 (PI: L. Kahn) in support of JAK.

First Name: Jessica

Last Name: Kulak

Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: State University of New York at Buffalo

ID: 182
Past-month substance use by sexual identity among american adult women

Emily Greene, Columbia University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Epidemiology

Abstract: Aim: Historically, rates of substance use, use disorder, and psychological distress have been higher among sexual minority adults compared to heterosexual adults. Research has focused on sexual minority men. Differences in substance use among sexual minority women are less well understood. This study compares recent substance use, use disorder, and psychological distress among adult women by sexual identity in a nationally representative US sample. Methods: Using female adult data from the 2015 National Survey on Drug Use and Health (NSDUH, N=23,255) public use data files, after descriptive analyses, we conducted weighted logistic regression analyses examining the associations between sexual identity (heterosexual, lesbian, bisexual) and past-month substance use, psychological distress, and past-year substance use disorder, all adjusting for sociodemographic characteristics. Results: Five percent of women identified as lesbian (1.5%) or bisexual (3.5%). Compared to women who identified as heterosexual (H), women who identified as lesbian (L) or bisexual (B) had higher odds of past-month marijuana use (L: 17%, aOR=2.48, 1.60-3.85; B: 24%, aOR=3.07, 2.45-3.86; H: 5%), heavy drinking (L: 34%, aOR=1.43, 1.14-1.80; B: 39%, aOR=1.56, 2.15-3.26; H: 22%), past-month psychological distress (L: 12%, aOR=1.87, 1.27-2.75; B: 19%, aOR = 2.68, 2.15-3.26; H: 5%), and past-year substance use disorder (L: 10%, aOR=1.53, 1.12-2.09; B: 16%, aOR = 2.08, 1.63-2.65; H: 5%). Additionally, women who identified as bisexual had elevated odds of past-month opiate use (B: 6%, aOR=3.78, 2.66-5.37; H: 1%), non-prescription stimulants (B: 3%, aOR=2.76, 1.62-4.69; H: 0.6%), hallucinogens (B: 2%, aOR=2.96, 1.96-4.48; H: 0.2%), and misuse of both prescription stimulants (B: 3%, aOR=2.48, 1.45-4.23; H: 0.5%), and sedatives/tranquilizers (B: 3%, aOR=2.76, 1.57-4.83; H:0.7%) relative to heterosexuals. Conclusions: The elevated odds of substance use among sexual minority women, especially bisexual women, are concerning, and suggest that they are population that may be need of psychological counseling and substance use disorder treatment services.

Financial Support: R01DA037866 (Martins)

First Name: Emily

Last Name: Greene

Degrees: MA MD Ph.D etc:: MPH, PhD

Company Affiliation: Columbia University

ID: 183
The efficacy of lidocaine in disrupting cocaine cue-induced memory reconsolidation

Josh Becker, University of Texas Southwestern Medical Center

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Stimulants

Topic: Treatment

Abstract: Rational: Cue-induced craving memories, linked to drug-seeking behaviors, require key molecular processes for memory reconsolidation. Lidocaine, a sodium channel blocker, inhibits NMDA receptor activation and suppresses nitric oxide and ERK production. These processes are required for memory re-consolidation; inhibiting them may reduce cue-related craving memories in cocaine dependent subjects. Aims: 1) Assess the efficacy of lidocaine in decreasing cue-induced cocaine craving and cocaine use, 2) assess the efficacy of lidocaine in decreasing craving and cocaine use for the four weeks following infusion and 3) determine if the presumed beneficial effects of lidocaine upon cocaine craving and use were specically a result of lidocaine's attenuation of memory reconsolidation. Methods: Treatment-seeking cocaine-dependent participants (n=33, 25 men) were recruited. Personalized craving and relaxation scripts were developed. Participants were then randomly assigned in a double-blind design to either receive intravenous lidocaine immediately following a cocaine craving script (lidocaine/craving), saline following a craving script (saline/craving), or lidocaine following a relaxation script (lidocaine/relax). One week following the infusion, cue-induced craving was assessed in the same paradigm without an infusion. Cocaine use and craving were assessed for 4 weeks following infusion. Results: The administration of lidocaine during craving induction (lidocaine/craving) did not decrease cue-induced craving during craving reactivation one week later or craving and cocaine use over the 4-week follow-up period compared to the saline/craving group. There were no significant differences in craving and cocaine use between the lidocaine/relax and saline/craving groups. Conclusion: Lidocaine administered following craving induction did not decrease subsequent cue-induced craving or cocaine use. Blocking the reconsolidation of craving-related memories with pharmacological agents remains an important area of investigation.

Financial Support: This study was funded by R21DA045936 from the National Institute on Drug Abuse and UT Southwestern Center for Translational MedicineUL1TR000451.

First Name: Josh

Last Name: Becker

Degrees: MA MD Ph.D etc:: BS

Company Affiliation: University of Texas Southwestern Medical Center

ID: 184
Training addiction counselors to deliver a brief psychosocial intervention for chronic pain among patients in opioid agonist treatment: A pilot investigation

Jenna Butner, Yale University School of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Other

Abstract: Aim: To pilot test a tailored pain-related training for addiction counselors. Methods: A multidisciplinary team developed a tailored training for counselors working in opioid agonist treatment (OAT) settings to screen and address chronic pain via a brief psychosocial intervention, and implemented it with 52 addiction counselors. Data on knowledge (9 true-false items) as well as attitudes, interest, and perceived ability (scored on 5-point Likert-type scales) were collected from addiction counselors before (pre-test), after (post-test), and after 6 months (follow-up). Results: Mean post-test ($M = 7.8$, $SD = 1.1$; $t(51) = -4.22$, $p < .001$) and follow-up ($M = 8.1$, $SD = 1.2$; $t(51) = -6.4$, $p < .001$) knowledge scores were higher compared to pre-test ($M = 6.8$, $SD = 1.4$). Favorable attitudes toward the role of addiction counselors in managing chronic pain increased after the training ($t(51) = -3.21$, $p < .01$). Counselor interest in assessing chronic pain increased ($t = -2.45$. $p < .05$) from pre-test ($M = 4.0$, $SD = 0.9$) to post-test ($M = 4.3$, $SD = 0.8$). Counselor ability to assess ($MPre = 2.9$, $SDPre = 1.0$; $MPost = 3.9$, $SDPost = 0.9$) and suggest appropriate interventions for pain ($MPre = 3.3$, $SDPre = 1.0$; $MPost = 4.1$, $SDPost = 0.8$) increased from pre-test to post-test (t's = -5.96 and -4.78, p's $< .001$). Perceived ability to assess chronic pain and suggest appropriate treatment interventions were higher at follow-up than at pre-test (t's = -2.46 and -4.23, p's $< .05$ and .001, respectively). Conclusions: Findings related to the initial evaluation of this training were promising, and future research is warranted to further examine the efficacy of training addiction counselors on psychosocial interventions to manage chronic pain among OAT patients.

Financial Support: APT Foundation, Inc

First Name: Jenna

Last Name: Butner

Company Affiliation: Yale University School of Medicine

ID: 185
Video enhancements to a virtual self-administration laboratory

Andrew Norman, University of Cincinnati, College of Medicine

Abstract Category: Theoretical/Commentary

Abstract Detail: Animal Study

Drug Category: Stimulants

Topic: Behavior

Abstract: AIM Drug self-administration behavior in rats is a valid model of addictive behavior. A pharmacokinetic/pharmacodynamic (PK/PD) interaction model of this behavior explains why the intervals between self-injections (T) are regular at any unit dose and increase with unit dose. This model is described by equation: T= ln(1 + DU /DST)/k where Du = unit dose of cocaine, DST = the minimum maintained cocaine concentration (satiety threshold), and k = the first-order elimination rate constant for cocaine. Demonstrating these principles in a classroom setting is impractical because it requires catheterized rats, DEA-regulated drugs in addition to very long intervals at higher unit doses. Therefore, a virtual self-administration laboratory with a virtual rat was created. To compliment the virtual rat simulation a video clip of a rat self-administering cocaine was included in the package. We have enhanced this aspect of the virtual laboratory. METHODS Videos of a rat self-administering cocaine on an fixed ratio (FR-1) schedule and across a range of unit doses were filmed. A graph exhibiting the cocaine level in the body of the rat is plotted simultaneously while the video plays. The rat exhibits noticeable stereotypic behaviors such as head bobbing and sniffing between the lever presses. The inter-injection intervals range between 0.5-12 min across the range of unit doses and self-administration sessions can be viewed along with their corresponding cocaine level graphs. RESULTS The graphs are created using C# WinForms with embedded PK/PD models of cocaine, including equation for T. The application has provisions for plotting multiple graphs simultaneously with different values of pharmacokinetic (k) and pharmacodynamic (DST) parameters which help to visualize how optimal PK/PD values can be generated from the behavioral data. CONCLUSION These video clips with the superimposed real-time calculated cocaine concentrations illustrate the PK/PD principles underlying cocaine self-administration behavior in rats.

Financial Support: NIDA grant U01DA039550

First Name: Andrew

Last Name: Norman

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: University of Cincinnati, College of Medicine

ID: 187
State naloxone access laws and opioid overdose death rates

Laura Monico, Friends Research Institute

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Policy

Abstract: Aims: To examine the ecological association between state naloxone access laws and opioid overdose death rates. Methods: This analysis utilizes annual state-level opioid overdose data from the National Vital Statistics System (NVSS) multiple cause of death mortality files, and naloxone access law data from the Prescription Drug Abuse Policy System (PDAPS) for 50 states and the District of Columbia, spanning 2001-2015. Overdose death rates were modeled as a function of change in state policies using longitudinal linear regression, with state and year fixed effects. Standard errors were corrected for within-panel heteroscedasticity and serial correlation. We hypothesized that states' codification of naloxone access laws would be associated with subsequent decline in the opioid overdose death rate. Results: The association between the codification of naloxone access laws and opioid overdose death rates was not significant ($p = .064$). Contrary to expectations, opioid overdoses continued to rise in many states following adoption of naloxone access laws, although there was considerable state-by-state variation. Conclusions: Although the current analysis did not find support for our hypothesis, it is important to recognize that over 80% of states and the District of Columbia did not have a naloxone access law until 2013. Moreover, states can vary considerably in the scope and timing of implementing statutes following their codification. Finally, there are potentially important time-variant state-level factors (e.g., opioid use disorder rates, treatment availability, and economic conditions) for which future analyses should account. Future research will continue analyzing these data as it becomes available to better understand the macro-level impact of greater naloxone availability. Planned extensions of this work will examine state naloxone laws in more detail, with more recent data, and additional controls for potential confounds.

Financial Support: None

First Name: Laura

Last Name: Monico

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Friends Research Institute

ID: 188
Marijuana and other drug use after becoming a medical marijuana patient: A mixed-method approach

Avat Kioumarsi, Drexel University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Policy

Abstract: AIM: Legalization of medical marijuana in California in 1996 was a step towards providing more medical alternatives to individuals with chronic health conditions. Over the past 20 years, studies have focused primarily on the medicinal benefits of marijuana and/or patient characteristics among adults. Limited data exist on young adult medical marijuana patients (MMPs), whether their marijuana use is linked to their medical condition, and the impact of becoming MMP on their patterns of marijuana and other drugs use. METHODS: A total of 40 MMPs (aged 18 to 26) were recruited in Los Angeles for a quantitative survey as well as a semi-structured qualitative interview in 2014-15. Study participants were asked about their health conditions, motivations for marijuana use, and patterns of marijuana and other drugs use after they became MMP. Descriptive frequency analysis plus qualitative thematic analysis, using both inductive and deductive approaches, were utilized. RESULTS: All participants reportedone or more medical conditions (e.g. depression, anxiety, chronic pain, migraine, etc.). Overall, two types of motivations for marijuana use emerged: medical and non-medical. Using marijuana for “mood or other psychiatric conditions” followed by “chronic pain or discomfort” was reported by the majority of the sample. Top non-medical reasons for marijuana use were “to help think differently or creatively” and “to have fun”. Initially, after obtaining a medical marijuanarecommendation, participants used marijuana more frequently and in greater amounts. They also started experiencing with marijuana concentrated forms. Then, within one or two years, amajority found a balance between their marijuana use and school/work responsibilities, andmanaged to transition from intensive use to less frequent use. Some respondents substituted marijuana for alcohol and prescription drugs, considering marijuana a safer and more natural alternative to prescription drugs. CONCLUSION: Young adult MMPs experienced various health conditions which served as a strong motivating factor to use marijuana. Legal access

Financial Support: NIDA R01 DA034067

First Name: Avat

Last Name: Kioumarsi

Degrees: MA MD Ph.D etc:: DrPH

Company Affiliation: Drexel University

ID: 189
Examining changes in youth community treatment agency linkages

Carl Leukefeld, University of Kentucky

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Adolescent

Abstract: University of Kentucky Aims: Community substance use disorder (SUD) agencies have linkages to treat juvenile justice (JJ) involved youth. Information exchange and communication is important to coordinate services for JJ youth. However, there are few studies focused on these linkages. This pilot study examines treatment and JJ staff perceptions about information exchange linkages at baseline and follow-up as part of a study to improve the continuum of care for JJ-involved youth. Methods: An 8-question index was developed after qualitative work, and 64 consenting staff from 6 SUD agencies and 6 JJ agencies were surveyed at baseline. At follow-up, 43 (67%) staff completed surveys an average of 21.7 months later. The index examined JJ staff perceptions of verbal communication, professional communication and treatment information exchange with the other agency for youth involved in community juvenile justice. Staff rated past year interactions from agree to disagree on a 7-point Likert scale. T-tests were used to examine change. Results: Professional experience of the 64 staff ranged from 9.8 to 15.8 years. There was a significant increase from baseline to follow-up for the professional communication subscale as well as the individual scale items (exchanging screening and assessments results). Each of the other measures increased at follow-up but the increases were not significant for verbal communication (ease of talking or listening) or treatment information (helped youth begin, engage, continue, and complete treatment).
Conclusions:
This pilot study found that professional communications among these agency staff increased significantly at follow-up. However, changes in verbal communications or exchanging treatment information were not significant. Additional approaches for agency staff linkages should be examined including joint data systems, electronic files, and shared facilities. Limitations include the small number of sites and staff.

Financial Support: This study is supported by NIDA Grant 1UO1 DA036158.

First Name: Carl

Last Name: Leukefeld

Degrees: MA MD Ph.D etc:: D.S.W.

Company Affiliation: University of Kentucky

Contact Title: Professor and Director

ID: 190
Modeling opioid maintenance therapy in rats: Effect of chronic buprenorphine on responding for drug-paired discrete cues in a non-drug context, context-induced reinstatement of drug seeking, and reacquisition of oxycodone self-administration

Jennifer Hoots, National Institute of Drug Abuse, National Institutes of Health

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Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Opiates/Opioids

Topic: Behavior

Abstract: Aim: High relapse rates perpetuate prescription opioid addiction, which drives the current drug overdose epidemic in the US. Opioid agonist (buprenorphine, methadone) maintenance therapy is an effective treatment for prescription opioid relapse. Our goal is to establish an experimental procedure in rats trained to self-administer the prescription opioid oxycodone that will allow us to compare the efficacy of an established treatment (buprenorphine) with that of newer opioid agonists currently developed for analgesia. Methods: We trained rats to self-administer oxycodone (0.1 and 0.05 mg/kg/infusion; 7 days/dose, 6-h/d) in Context A; drug infusions were paired with a discrete tone-light compound cue. We then implanted osmotic minipumps (s.c.) containing vehicle or buprenorphine (6 mg/kg/d) and performed three relapse tests: (1) responding for drug-paired discrete cues under extinction conditions in a non-drug context (Context B), (2) context-induced reinstatement of oxycodone seeking in Context A after extinction of operant responding in Context B, and (3) reacquisition of oxycodone self-administration in context A. Results: Chronic buprenorphine inhibited responding reinforced by drug-paired discrete cues in Context B and reacquisition of oxycodone self-administration in Context A but did not significantly decrease context-induced reinstatement of oxycodone seeking. Conclusions: Chronic buprenorphine reduced oxycodone relapse provoked by exposure to oxycodone-associated discrete cues or oxycodone itself, but had a minimal effect on relapse provoked by exposure to contexts previously associated with drug self-administration. We are currently establishing a dose-response of chronic buprenorphine and testing the efficacy of the biased mu opioid receptor agonist TRV130 and the mixed mu/nociceptin receptor agonist BU08028 in our opioid maintenance/relapse procedure. This work was supported by NIDA/NIH

Financial Support: This work was supported by NIDA/NIH

First Name: Jennifer

Last Name: Hoots

Degrees: MA MD Ph.D etc:: BA

Company Affiliation: National Institute of Drug Abuse, National Institutes of Health

ID: 191
Experiences of burnout among drug counselors in a large opioid treatment program: A qualitative investigation

Declan Barry, Yale University School of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: Aim: To investigate the experiences of burnout among drug counselors in opioid treatment programs that are scaling up capacity to address the current opioid epidemic. Methods: Participants in this quality improvement study were 31 drug counselors employed by large opioid treatment programs whose treatment capacities were expanding. Experiences of burnout and approaches for managing and/or preventing burnout were examined using individual semi-structured interviews, which were audiotaped, transcribed, and systematically coded by a multidisciplinary team using grounded theory. Results: Rates of reported burnout (in response to an open-ended question) were lower than expected, with approximately 26% of participants reporting burnout. Counselor descriptions of burnout included cognitive, affective, behavioral, and physiological symptoms; and job-related demands were identified as a frequent cause. Participants described both self-initiated (e.g., engaging in pleasurable activities, exercising, taking breaks during workday) and system-supported strategies for managing or preventing burnout (e.g., availing of supervision and paid-time off). Counselors provided recommendations for system-level changes to attenuate counselor risk of burnout (e.g., increased staff-wide encounters, improved communication, accessible paid time off, and increased clinical supervision). Conclusions: Findings suggest that drug counselor burnout is not inevitable, even in opioid treatment program settings whose treatment capacities are expanding. Organizations might benefit from routinely assessing counselor feedback about burnout and implementing feasible recommendations to attenuate burnout and promote work engagement.

Financial Support: APT Foundation, Inc

First Name: Declan

Last Name: Barry

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Yale University School of Medicine

Contact Title: Assistant Professor of Psychiatry

ID: 192
Risk factors for premature discontinuation of buprenorphine treatment for opioid use disorder among Medicaid enrollees

Hillary Samples, Columbia University Mailman School of Public Health

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: Aim: Recent U.S. trends demonstrate sharp rises in adverse opioid-related health outcomes, including addiction. Yet, few affected people ever receive treatment for opioid use disorder (OUD) and a minority of those who receive treatment are effectively retained in care. The aim of this study was to examine duration of buprenorphine treatment for OUD following treatment initiation in order to identify risk factors for discontinuation. Methods: We analyzed health insurance claims drawn from the MarketScan multi-state Medicaid database between 2013-2015. The sample included adults 18-64 years old with an OUD diagnosis in the 6 months before or after incident buprenorphine treatment, defined as 6 months without a buprenorphine claim prior to the index buprenorphine claim (N=28,605 individuals). Cox proportional hazards regression was used to estimate risk of discontinuing treatment (>30 days without buprenorphine supply). Logistic regression was used to estimate the odds of persistent treatment for at least 180 days. Results: Over one-quarter of the sample discontinued buprenorphine in the first month of treatment (N=7,988; 27.9%) and most discontinued before 180 days (N=20,997; 73.4%). Risk factors for discontinuation included male sex (adjusted Hazard Ratio [aHR]=1.19, p
Financial Support: NIDA training grant T32DA031099 (Samples), AHRQ award R18HS03258 (Crystal), AHRQ award U19HS021112 (Crystal), AHRQ award R18HS02346 (Crystal)

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Company Affiliation: Columbia University Mailman School of Public Health

ID: 194
Transition from prescription opioid misuse to injection drug use in social networks of youth and young adults

Alia Al-Tayyib, Denver Public Health

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: AIM: To examine transition from prescription opioid misuse to injection drug use from a social networks perspective. METHODS: Between 10/1/2015-4/25/2017, persons in the Denver metropolitan area were recruited into the Social Networks of Abused Prescription Pills in Youth study using a combination of direct outreach and respondent-driven sampling. Eligibility criteria included: 15-24 years, currently misusing prescription opioids, or using heroin after prescription opioid misuse. Participants completed interviewer-administered behavioral and social network surveys. Persons from whom data were directly collected are called egos and they provided data on persons in their networks called alters as well as places of aggregation; all of which are called nodes. We created a sociomatrix connecting all nodes. With respect to transition, we examined k-plexes, subgroups of size n where each node connects to at least n-k other nodes. RESULTS: Of 217 persons screened for participation, 80 egos were successfully recruited: mean age 21.4 (SD=2.3), 73% male, 68% non-Hispanic white, and 60% self-reported being homeless in the past 12 months. Of the 80, 64 (80%) reported injection drug use, 11 (14%) misused prescription opioids, and 5 (6%) had used heroin without injecting. The 80 ego participants provided data on 537 alter namings resulting in 489 unduplicated alters. Mean age of the 489 unique alters was 27.2 (SD=10.2), 67% were described as male, 65% non-Hispanic white, and 180 (37%) as homeless. Egos provided 133 unique locations where they hung out with named alters; 68% could be described within 5 blocks of a true location. The mean number of k-plexes for those who reported injection drug use was 50.9 (SD=83.9; 1–430) compared to 32.8 (SD=26.2, 6-90) for those who reported prescription opioid misuse and 46.0 (SD=40.1, 7-105) for those who reported heroin use with no injection. CONCLUSION: Persons who have transitioned to injection drug use are in denser network regions.

Financial Support: K01DA036452 (Al-Tayyib)

First Name: Alia

Last Name: Al-Tayyib

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Denver Public Health

ID: 195
Polysubstance opioid use profiles in an incarcerated population

Amanda Bunting, University of Kentucky

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Epidemiology

Abstract: Aim: The majority of opioid-related overdoses are due to polysubstance use, and a better understanding of prevalence and effects are necessary to inform interventions. This research examines criminal justice-involved individuals who use opioids with one or more substance(s) (i.e., polysubstance opioid use) prior to entry in a Department of Corrections (DOC) substance abuse treatment program. Users of opioids are not a homogenous group and to treat them as such undermines the potential for successful treatment and reentry outcomes. Method: Data were collected from 705 inmates entering a DOC treatment program. To determine the different typologies of polysubstance opioid use, latent class analysis of the prior thirty-day drug use was conducted. Class-probabilities and post-hoc associations with criminal and health variables were examined. Results: A four-class model was selected based on Akaike information criterion and Bayesian information criterion values. Class 1, with 72.36% of the sample, was categorized by low drug use (e.g., marijuana, x=10 days). Class 2 comprised 9.77% of the sample and was composed of individuals with high suboxone use (x=28 days) and injection drug use (77%). Class 3 consisted of high injection drug use (82%) and heroin (x=29 days), with 16.03% of the sample. Class 4 comprised 1.84% of the sample, but represented a high-risk group with 99.99% injection drug use and nearly daily nonmedical prescription analgesics (x=28 days) and barbiturates (x=27 days) use. Significant associations were found among mental health variables and the high IDU/heroin class (p
Financial Support: Supported by: NIDA T32DA035200

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Degrees: MA MD Ph.D etc:: MA

Company Affiliation: University of Kentucky

ID: 196
Illicit drug use among young adult marijuana users in Los Angeles: a qualitative analysis of contextual factors, life events, and marijuana use

Ekaterina Fedorova, Drexel University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Policy

Abstract: Aims: Within a sample of marijuana using young adults, we hypothesized that: 1) contextual factors and life events might impact transitions into or out of illicit drug use, e.g., cocaine, ecstasy; and 2) marijuana might help young adults move away from illicit drug use or provide relief from negative after effects of use. Methods: Semi-structured qualitative interviews were conducted with 40 young adult medical marijuana patients and 22 non-patient marijuana users in Los Angeles during 2014-15. Interviews were audio recorded, transcribed, and coded by using thematic and open coding approaches. Results: We identified three patterns of illicit drug use: daily/problematic; occasional; and never. Daily/problematic users were primarily users of methamphetamine, cocaine and ecstasy. A majority reported the lasting impact of traumatic life events (e.g., death of a significant other) or stressful contextual factors (e.g., dysfunctional family) and that marijuana alleviated negative after effects of use (e.g., anxiety, insomnia). Cessation of illicit drug use was frequently linked to life events (e.g., witnessed overdose, birth of a child). In contrast, most occasional users who reported impactful life events or contextual factors used marijuana to cope with those experiences. Finally, most never users reported a fear of illicit drug use either due to witnessed overdoses or family history of substance abuse. Almost all of never users reported some degree of medicinal orientation towards marijuana use, and this group had the highest proportion of medical marijuana patients. Conclusion: Daily/problematic users used marijuana to cope with after effects of use, and contextual factors and life events played a major role in use and cessation of illicit drug use. In contrast, occasional users self-medicated with marijuana to cope for those experiences. Therefore, marijuana can play an integral role in the young adults' patterns of illicit drug use by either providing relief for short-term negative consequences associated

Financial Support: Financial support: Supported by NIDA R01 DA034067.

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Degrees: MA MD Ph.D etc:: DrPH

Company Affiliation: Drexel University

ID: 197
Benefits of long-term opioid agonist treatment participation for patients with opioid use disorder

Kathryn Hawk, Yale University Department of Emergency Medicine

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: Aim: To evaluate long term drug use outcomes among patients with opioid use disorder (OUD) who were engaged in opioid agonist treatment (OAT) at both 6 and 12 months and those who were not in any treatment at 6 and 12 months. Methods: Research data on a subset of patients enrolled in an ED-based trial with continuous follow up at 6 and 12 months were used to compare reductions of nonmedical opioids and other drug use. Among 131 participants, 71 were in treatment with methadone or buprenorphine at both 6 and 12 months and 60 participants consistently reported no treatment engagement at both 6 and 12 months. Participants reporting inconsistent OAT, or non-OAT participation, and those with missing follow-up data were excluded. Analyses of variance and chi square tests were used to evaluate the significance of the observed between group differences. Results: The mean (SD) age of the followed sample was 32 (10); 28/131 (21%) were females. The compared groups didn't differ on race, gender or insurance status. Participants in OAT at both 6 and 12 months had significantly better drug use outcomes than those not in treatment at these time points. Patients engaged in treatment at both time points reported fewer days of non-medical opioid use at 6 (0.77 days +/- 1.76 vs 3.33 +/- 2.92) and 12 months (0.06 +/- 0.23 vs 1.91 +/- 2.86, $p < 0$ .001) and had higher rates of opioid (63% vs. 28%, $p < 0$ .001) and cocaine negative urine tests (40% vs. 22%, $p=0.037$) at 6 months. Conclusions: Longer term participation in OAT is associated with sustained reductions in non-medical opioid and other drug use. These findings underscore the importance of developing effective strategies not only for enrolling patients with OUD in OAT, but also for supporting and maintaining a long term therapeutic engagement of these patients.

Financial Support: NIDA 5R01DA025991, K12DA033312

First Name: Kathryn

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ID: 198
Motives for illicit buprenorphine/naloxone use among opioid consumers in New Hampshire

Elizabeth Saunders, The Dartmouth Institute for Health Policy and Clinical Practice

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Behavior

Abstract: Aim: Buprenorphine combined with the opioid antagonist naloxone (B/N) is an effective pharmacotherapy for the treatment of opioid use disorders (OUD), yet is often diverted. Several studies have examined patterns of illicit B/N use among urban individuals with OUDs. Less is known about access and patterns of illicit B/N use among rural individuals or those using fentanyl, including motives for use. This qualitative study sought to examine access to illicit B/N among opioid consumers from New Hampshire (NH), a rural state and a key hotspot of the opioid crisis, and identify motives and patterns of use. Methods: Seventy-six NH opioid consumers completed semi-structured qualitative interviews about their experiences with opioid use, overdose, and treatment. Participants were recruited through Craigslist advertisements and flyers posted in treatment programs and the community. All participants also completed a brief demographic and substance use history survey. After coding each interview, content analysis was used to systematically identify patterns and themes. Results: Eighty-four percent of participants endorsed current or past fentanyl use. Sixty-five percent reported having received a B/N prescription, while 38% percent endorsed current or past illicit B/N use. The primary motive for using illicit B/N was to prevent withdrawal symptoms while on waiting lists for treatment (n=15). Street B/N was perceived to be cheaper and more available than prescribed B/N. Participants also discussed using illicit B/N to taper themselves and acknowledged that B/N was a safe option in a region flooded with fentanyl-laced heroin. For five consumers, fluctuations in the availability of illicit B/N contributed to recommencement of heroin and fentanyl use. Conclusions: In this sample of New Hampshire opioid consumers, over one-third endorsed illicit B/N use. Predominately, participants used illicit B/N as a bridge while awaiting entry to treatment, but also sought to taper themselves or prevent withdrawal when other opioids were unavailable.

Financial Support: NIDA T32 DA037202; NIDA U01DA038360-Z0717001

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ID: 199
Category 1 assessment of opioid vaping: A focus of FDA advisory committee interest

August Buchhalter, Pinney Associates, Inc.

Abstract Category: Theoretical/Commentary

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Other

Abstract: Aims: The use of e-cigarettes for administration of nicotine and cannabis products has become widespread in the United States and there are reports of their use for other drug classes, too. This commentary evaluates the potential use of e-cigarette devices as an alternate means of opioid administration. Commentary: The success of vaping devices for the delivery of nicotine vapor for inhalation has been substantial and the technology has improved markedly since its introduction in 2007. Inhalation provides rapid delivery of drug to blood and brain and may result in immediate reinforcing effects contributing to its abuse potential. Because these e-cigarette devices operate below combustion temperatures, the production of toxic components is reduced or eliminated. Vaping devices with similar features as e-cigarettes have also been developed and broadly used for vaping cannabis products. Additionally, there have been limited attempts to adapt vaping devices for delivery of psychoactive drugs such as synthetic cannabinoids, psychostimulants, and opioids. The success of these attempts will depend in large measure on the characteristics of the vaping device and the physicochemical properties of the drug of interest. Typically, e-cigarettes are designed to vaporize liquids comprised of drugs dissolved in propylene glycol and glycerin. Drug potency, solubility, chemical form (salt or base), and vapor pressure are key elements in determining success of drug delivery by vaporization or aerosolization. Numerous Internet postings and several publications have indicated apparent success in use of e-cigarettes for vaping opioids; however, current prevalence appears low compared to other recreational drugs (e.g., cannabis). Conclusions: The use of e-cigarettes for vaping opioids appears to be primarily in the “experimental” stage by drug abusers. Recent queries by FDA Advisory Committee members regarding the potential for vaping opioids suggest that further research and evaluation of vaping opioid products should be conducted as part of Category 1 assessments.

Financial Support: None. In the interest of transparent disclosure, PinneyAssociates (PA) works on an exclusive basis on smoking cessation and tobacco harm minimization products (such as vaping devices) and issues with Reynolds American Inc (RAI). PA does not work on RAI’s conventional cigarettes.

First Name: August

Last Name: Buchhalter

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Pinney Associates, Inc.

Contact Title: Scientist

ID: 200
Prevalence and correlates of adolescents' e-cigarette use frequency and dependence

Erin Vogel, University of California San Francisco

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Adolescent

Abstract: AIM: Electronic cigarette (e-cigarette) use is now more common than smoking among adolescents. This study examined the prevalence and correlates of adolescents' e-cigarette use frequency and dependence. METHODS: Adolescent e-cigarette users age 12-17 (N = 173, 75% male) were recruited from the San Francisco Bay Area (using social media, fliers, and word-of-mouth) and completed a survey. Participants were classified as "frequent" users if they used an e-cigarette 10+ days in the past month, and "dependent" if they used their first e-cigarette within 60 minutes of waking. Logistic regression examined bivariate associations between psychosocial and e-cigarette use variables and frequency/dependence. Significant correlates were entered into multiple logistic regression analyses. RESULTS: The sample was 55% Non-Hispanic White and 75% male. 69% were high-frequency users and 38% were dependent; 27% also smoked cigarettes. Bivariate correlates of high-frequency use included older age ($p = .001$), college-educated mother ($p = .018$), nicotine in all e-cigarettes ($p = .001$), nicotine in first e-cigarette ($p = .046$), higher percentage of friends who use ($p = .008$), and use of a customizable e-cigarette device ($p = .002$). In the full model, only device type predicted use frequency, such that those who used Juul (OR = .19, $p = .01$), vape pens (OR = .26, $p = .02$), and other devices (OR = .16, $p = .01$) had lower likelihood of frequent use than customizable device users. Bivariate correlates of dependence included younger age of initiation ($p = .008$), nicotine in first e-cigarette ($p = .03$), first receiving ($p = .01$) or hearing about ($p = .025$) e-cigarettes from a family member, friends' use ($p = .002$), and past-month cigarette use ($p = .02$). In the full model, age of first use (OR = .66, $p = .01$), friends' use (OR = 1.02, $p = .006$), and past-month cigarette use (OR = 2.91, $p = .02$) remained significant correlates. CONCLUSION: Most participants were frequent, but not dependent, e-cigarette users. Adolescents who used customizable devices, initiated use at a young age, had many friends who use, and smoked cigarettes were at highest risk.

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Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: University of California San Francisco

ID: 201
Men who have sex with men and inject drugs in a Canadian setting

Ayden Scheim, University of California San Diego

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Behavior

Abstract: AIM: Men who have sex with men and who inject drugs (MSM-PWID) experience high rates of HIV acquisition; however, little is known about the characteristics of this population. We examined sociodemographic, social-structural, substance use, and addiction treatment factors associated with reporting sex with men among men who inject drugs across three open prospective cohort studies in Vancouver, Canada. METHODS: Data were drawn from three cohorts including HIV-negative (VIDUS), HIV-positive (ACCESS), and street-involved young (ARYS) people who use drugs. Among male participants with a history of injection drug use, bivariable and multivariable generalized estimating equations were used to identify factors associated with reporting sex with men in the previous six months (excluding sex work partners) between 2005 and 2014. RESULTS: Of 1663 male participants, 141 (8.5%) reported recent non-transactional sex with men at baseline, and 225 (13.5%) did so at least once during the study period. In multivariable analyses, sex with men was associated with daily non-injection methamphetamine use (Adjusted Odds Ratio [AOR] =1.62; 95% confidence interval [CI]: 1.02 – 2.55), sex work (AOR=3.27; 95% CI= 1.62 – 6.63), syringe borrowing (AOR=1.55; 95% CI= 1.11 – 2.16), and daily heroin injection (AOR= 0.73; 95% CI= 0.56 – 0.95). MSM-PWID demonstrated higher seropositivity for HIV (AOR=4.50; 95% CI= 2.58 – 7.85) and lower seropositivity for Hepatitis C (AOR=0.43; 95% CI= 0.27 – 0.71). CONCLUSION: Among male PWID, sex with men was associated with stimulant use and high risk behaviors relevant for intervention development. That MSM-PWID were likely to be HIV positive but less likely to be HCV positive, despite a greater likelihood of syringe borrowing, suggests that their injecting networks may differ from those of non-MSM PWID. Further investigation of MSM-PWID injecting networks, as well sexual risk behaviors, is warranted.

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First Name: Ayden

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Degrees: MA MD Ph.D etc:: PhD

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ID: 202
Gender differences in nonmedical prescription drug use trends among adolescents in three South American countries from 2007-2015

Alexander Perlmutter, Columbia University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Stimulants

Topic: Sex Differences

Abstract: Aim Little is known about nonmedical use of prescription drugs in South America. We evaluated trends in past year (PY) nonmedical prescription stimulant (NMPS) and tranquilizer (NMPT) use among adolescents in three South American countries overall and by gender. Methods We used separate nationally representative complex weighted data from school-based surveys conducted in Argentina, Chile and Uruguay. We estimated the prevalence of PY NMPS and NMPT use among students in 8th to 12th grades from 2007-2015. Logistic regression models estimated the log odds (back-transformed to prevalence) of NMPS and NMPT use by gender, adjusting for school type (private, public, subsidized in Chile only) and year. Results Argentinian students' overall PY NMPT use prevalence was stable from 2007-2014 (2.6%-2.5%); females had a slightly higher average prevalence than males (diff: +0.5% pts; 95% CI: [0.4-0.7]). Uruguay's PY NMPT use decreased overall (4.2%-3.2%) and for females only (5.4%-4.1%) from 2007-2014; females had a higher average prevalence than males (diff: +2.4% pts; 95% CI: [1.5-3.0]). Chilean students' PY NMPT use prevalence increased (3.6%-8.5%), for males (2.9%-6.9%) and females (4.3%-10.0%) from 2007-2015; females had a higher average prevalence than males (diff: +1.8% pts; 95% CI: [1.5-2.1]). Argentinian (1.8%-1.4%) and Uruguayan (1.8%-0.5%) students' PY NMPS use decreased from 2007-2014, with no gender differences. From 2007-2009, Chilean students' PY NMPS prevalence decreased from 2007 to 2009 (1.8%-1.2%), then increased in 2015 (1.6%); females used marginally less than males on average. Conclusion PY NMPT use did not change in Argentina, decreased in Uruguay and more than doubled in Chile. NMPT use was higher among females in all countries, a gap which widened over time in Chile. PY NMPS use decreased in Argentina, Uruguay and Chile, but recovered in Chile to early levels. Gender differences are an important aspect of the nonmedical prescription drug use problem in these populations.

Financial Support: R01DA040924 (Cerda).

First Name: Alexander

Last Name: Perlmutter

Degrees: MA MD Ph.D etc:: MPH

Company Affiliation: Columbia University

ID: 203
Statistical considerations on pharmacodynamic assessment

Ling Chen, U.S. Food and Drug Administration

Abstract Category: Theoretical/Commentary

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Other

Abstract: January of 2017 FDA published the final FDA Guidance for Industry: Assessment of Abuse Potential of Drugs. Drug products addressed in this guidance include that contain CNS-active new molecular entities (NMEs) as well as those products that contain CNS-active substances that already controlled under the Controlled Substances Act (CSA) (see generally 21 U.S.C 811). Section V of the guidance is for abuse-related data from human studies, and under this section Part C is for human abuse potential (HAP) study in recreational drug users. One may notice that there still are three main tests recommended to address FDA's concerns: 1. test for the mean difference between positive control and placebo, 2. test for the mean difference between positive control and test product, and 3. test for the mean difference between test product and placebo. However, the test value (margin) for each test is no longer equal to zero. In addition, the type I error rate for each test is no longer equals to 0.025. This presentation provides the explanations of these changes, and also gives some suggestions on how to choose the test value for each test in the primary analysis.

Financial Support: None.

First Name: Ling

Last Name: Chen

Company Affiliation: U.S. Food and Drug Administration

ID: 204
In-vitro to in-vivo translation for the cannabinoid-1 receptor: Value for derisking off-target cannabinoid receptor agonism liabilities in drug discovery

Susan Goody, Pfizer, Inc.

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Marijuana/Cannabinoids

Topic: Behavior

Abstract: AIM: Evaluating new drugs for off-target pharmacological activity against various receptors, ion channels, enzymes, and transporters is an essential part of drug discovery, where the intent is to identify and mitigate undesirable pharmacodynamic effects to achieve target specificity. Some of the commonly assayed sites, such as cannabinoid 1 receptors (CB1Rs), are highlighted in the FDA Guidance for Industry for their potential to predict abuse liability. However, translating potency from in-vitro CB1R binding and functional activity to in-vivo pharmacodynamic effects preclinically and in humans has remained a challenge. Historically, the characteristic 'tetrad' behavioral profile (antinociception, hypothermia, catalepsy, and hypolocomotion) has been used to monitor CB1R agonism in animals. The aim of this work was determine the translation from in-vitro CB1R affinity and efficacy to in-vivo tetrad endpoints, as well as CB1R agonist-induced subjective effects in drug discrimination and clinical subjective effects. METHODS: Ten compounds with CB1R agonism were administered to rats to determine effects on body temperature and sedation/catalepsy endpoints. These compounds were also evaluated in rats previously trained to discriminate between the presence/absence of the subjective cues induced by the full CB1R agonist, CP-55,940. RESULTS: Relative to the in-vitro CB1R Ki and EC50, brain concentrations of these compounds consistently predicted effects in drug discrimination at surprisingly low multiples, whereas effects on tetrad endpoints were poorly correlated. For example, partial generalization (>20% CP-55,940 responding) occurred at brain concentrations that were a fraction (1/100th to 1/50th) of the CB1R EC50. CONCLUSION: These data demonstrate that drug discrimination outcomes can be predicted by brain exposures and off-target CB1R screening data and provide confidence that drug discrimination represents the most reliable in-vivo measure of CB1R agonism in rats. Furthermore, literature data indicates that both measures can be reliably translated to clinical subjective effects associated with CB1R abuse liability.

Financial Support: Authors declare no external support.

First Name: Susan

Last Name: Goody

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Pfizer, Inc.

ID: 205
Who gets cleared for opioid detoxification trials: From the window of apathy or trauma

Alison Oliveto, University of Arkansas for Medical Sciences

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: AIM Because recruitment of substance-using populations into biomedical clinical trials is fraught with high screen failure rates, we assessed whether two factors, apathy and early childhood trauma, were associated with health status and/or drop out and/or differed by sex. METHODS Opioid users undergoing screening for an ongoing detox clinical trial completed the Apathy Evaluation Scale (AES) and early childhood trauma questionnaire (CTQ) during the initial screening visit. Screening procedures were completed during two visits and included obtaining medical, psychiatric and substance use histories, blood work, urinalysis and toxicology screens, and electrocardiogram. If initial findings were not exclusionary, a physical and psychiatric exam was performed. Three categories of study disposition were identified: cleared screening, dropped out prior to assessment, ineligible due to medical, psychiatric or benzodiazepine/alcohol use issues. Sex was also included in these preliminary analyses. Spearman correlational analyses and ANOVA were performed as appropriate. FINDINGS One hundred four participants completed both the AES and CTQ during screening. AES score was significantly correlated with CTQ total score ($r=0.39$, $p < 0.0001$) and CTQ emotional abuse ($r=0.35$, $p=0.0003$), emotional neglect ($r=0.40$, $p < 0.0001$), physical abuse ($r=0.27$, $p=0.005$), physical neglect (0.37, $p < 0.0001$), but not sexual abuse ($r=0.16$, $p=0.09$) sub-scores. Those that had medical/psychiatric exclusions had a significantly greater AES score relative to those that voluntarily withdrew ($p=0.03$). Females tended to have higher CTQ total scores ($p=0.063$) and had significantly higher emotional abuse and sexual abuse sub-scores relative to males (p's < 0.02); however, within females or males neither AES nor CTQ scores differed depending on study disposition. CONCLUSIONS Lower apathy scores were related to dropout while higher apathy scores were related to medical/psychiatric exclusions. Severity of early childhood trauma showed no relationship to disposition. These findings suggest those with a more moderate levels of apathy are likely to complete screening and meet study eligibility.

Financial Support: R01-DA039088 from the National Institute on Drug Abuse

First Name: Alison

Last Name: Oliveto

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: University of Arkansas for Medical Sciences

Contact Title: Professor and Vice Chair for Research

ID: 206
Mixed-methods study estimating the impact and feasibility of providing HIV antiretroviral treatment (ART) and opioid agonist therapy (OAT) in prison and upon release on HIV incidence among people who inject drugs (PWID) in Tijuana, Mexico

Annick Borquez, University of California San Diego

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: AIDS/Immune

Abstract: AIM Tijuana is a nexus for drug use on the Mexico-U.S. border, with an estimated 10,000 PWID and high rates of incarceration. Under 3% of PWID receive OAT, and METHODS We developed a deterministic model of injecting and sexual HIV transmission among PWID disaggregated by HIV status (including ART), sex, incarceration status and OAT and calibrated it to time-series HIV prevalence and incidence data among PWID in Tijuana. We estimated the impact on HIV incidence among PWID of providing ART to HIV-infected PWID or/and OAT among all PWID in prison and on release, and of also scaling up these services among PWID in the community from 2018-2030. Twelve PWID recently released from prison in Tijuana were interviewed to explore intervention acceptability and feasibility. Interviews were transcribed and thematic analysis was implemented. RESULTS Modeling indicates ART and OAT provision in prison and on release between 2018-2030 could avert 20% (95% Credible Interval (CrI): 8%-37%) and 18% (95%CrI: 8%-30%) of new HIV infections, respectively, among all PWID in Tijuana. In combination, these interventions could avert 30% (95%CrI: 13%-47%) of HIV infections. In addition, achieving 50% ART coverage and 20% OAT coverage among PWID in the community could avert 46% (95%CrI: 24%-62%) of new HIV infections. High acceptability of ART in prison was reported by PWID, but misconceptions about OAT resulted in reluctance to uptake the latter. CONCLUSION Provision of HIV and drug treatment services in prison and on release could substantially reduce HIV incidence among PWID in Tijuana. In addition, moderate community scale up could halve HIV incidence. Poor understanding of OAT among PWID in Tijuana represents a barrier for implementation.

Financial Support: NIDA/NIH R01 DA037773-01A1 NIDA/NIH R01 DA019829

First Name: Annick

Last Name: Borquez

Degrees: MA MD Ph.D etc:: PhD, MSc

Company Affiliation: University of California San Diego

ID: 207
Ethanol reinforcement elicits a novel response inhibition behavior in a model of ethanol dependence

Sucharita Somkuwar, Veterans Medical Research Foundation

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Alcohol

Topic: Behavior

Abstract: Reduced impulse control is a risk factor for drug abuse vulnerability; chronic drug use aggravates impulsivity to further facilitate escalation of drug use and relapse. With respect to alcohol use disorder, the contribution of impulsivity is unclear. The current study evaluated changes in impulsivity during the development of the ethanol dependence and the subsequent protracted abstinence from ethanol using the well-established chronic intermittent ethanol-vapor exposure (CIE) model of ethanol dependence. Impulsivity was measured using a differential reinforcement of low rates 15s (DRL15) schedule where the reduced efficiency of earning reinforcers (% reinforcers earned/lever presses) indicates increased impulsivity. Adult male Wistar rats (n=8/group) were tested on DRL15 using either sucrose (palatable modified sucrose pellets) or ethanol (10% v/v with 0.125% w/v saccharine sodium, 1.5% w/v sucrose) as the reinforcer during six weeks of CIE and five weeks of abstinence. Neither CIE, nor forced abstinence altered efficiency compared to matched controls when sucrose was used. In contrast, prolonged abstinence from CIE increased efficiency when ethanol was used ($p < 0$ .05). Further analysis of responding for ethanol revealed reduced burst responding and more accurate timed-responding by CIE rats compared to controls (ps < 0 .05); these behavioral adaptations contribute to the increased efficiency for earning ethanol reinforcers. Interestingly, ethanol intake (and not sucrose) by CIE rats was greater than controls during CIE and protracted abstinence (ps < 0 .05), suggesting a preference for the addiction-specific reinforcer. No between-group differences were found in body weight, in locomotor activity during DRL15, or in progressive ratio breakpoint for ethanol. Taken together, the choice of reinforcer is critical to identifying behavioral adaptations due to ethanol dependence. Addiction-specific reinforcer revealed an apparent decrease in impulsivity or greater response inhibition (independent of hyperactivity and motivation), which may be indicative of a hitherto forth unexplored mechanism affecting escalation and relapse.

Financial Support: Funding: AA020098, AA06420 and DA034140

First Name: Sucharita

Last Name: Somkuwar

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Veterans Medical Research Foundation

ID: 208
Food addiction is associated with higher neuroticism, lower conscientiousness, higher impulsivity, but lower extraversion in obese patients candidates for bariatric surgery

Paul Brunault, University Hospital of Tours

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Other

Abstract: Background: The “food addiction” phenotype identifies a subpopulation of patients experiencing substance-dependence symptoms toward specific foods highs in fat, sugar and/or salt. Up to now, only a few studies assessed the personality characteristics associated with this phenotype. Although the Big Five model is one of the most validated models of personality dimensions, we currently lack studies investigating the personality dimensions associated with food addiction. Such knowledge is however crucial to better delineate this phenotype, to adjust the therapeutic strategies, and, by comparing these personality traits to those associated with addictive disorders, it could also add to the debate whether “food addiction” should be viewed as an addictive disorder. Aim/objective and hypothesis: To assess the personality traits and dimensions associated with food addiction in patients with severe obesity. We hypothesized that food addiction would be associated with personality characteristics usually associated with well-recognized substance-related and addictive disorders. Methods: We assessed food addiction (Yale Food Addiction Scale 1.0), big five personality dimensions (Big Fig Inventory), impulsivity (Barratt Impulsiveness Scale-11th version) and alexithymia (Toronto Alexithymia Scale-20 items) in 188 bariatric surgery candidates recruited between July 2013 and November 2015 in the Nutrition Department of the University Hospital of Tours, France. Results: Prevalence of current food addiction was 16.5%. Patients with (vs. without) food addiction reported higher impulsivity, higher alexithymia, higher neuroticism, lower extraversion (ps < 0 .001), and lower conscientiousness (p < 0 .05), but there was no difference in terms of agreeableness (p = 0.42) or openness (p = 0.16). These associations remained significant in multiple logistic regression analyses after adjustment for age and gender. Conclusion: Food addiction shares many personality traits with substance-related disorders (high neuroticism, low conscientiousness, high impulsivity and high alexithymia), and one distinctive personality dimension (low extraversion). These results may provide additional arguments for the inclusion of the “food addiction” phenotype in the “substance-related and addictive disorder” category.

Financial Support: None

First Name: Paul

Last Name: Brunault

Degrees: MA MD Ph.D etc:: MD, Ph.d

Company Affiliation: University Hospital of Tours

ID: 209
Relative reinforcing effects of the synthetic cathinones MDPV and α-PVP in rhesus monkeys

Gregory Collins, University of Texas Health Science Center

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Club/Designer Drugs

Topic: Behavior

Abstract: AIM The availability and abuse of synthetic/designer drugs (aka "New Psychoactive Substances" [NPS]) has increased dramatically worldwide. The NPS superfamily includes hundreds of unregulated substances with diverse pharmacology (e.g., stimulants, cannabinoids, opioids) that are purported to produce effects similar to drugs under international control (e.g., cocaine, cannabis, heroin). Like cocaine, the synthetic cathinones MDPV [3,4-methylenedioxypyrovalerone] and α-PVP [α-pyrrolidinopentiophenone] inhibit uptake at monoamine transporters and are common constituents of "Bath Salts" preparations. Studies in rats suggest that MDPV and α-PVP are 3 to 4-fold more effective than cocaine as reinforcers; however, there are no reports on the reinforcing effects of MDPV and α-PVP in rhesus monkeys. METHODS The reinforcing effects of MDPV and α-PVP were characterized in 4 male rhesus monkeys responding under a progressive ratio schedule of reinforcement [response requirement = 5e(inf# x0.2)-5, limited hold = 2hrs, max session duration = 20hrs), and compared to cocaine and methamphetamine. RESULTS α-PVP was the most effective reinforcer (Emax = 24.1±1 infusions; final ratio = 4029±801), followed by MDPV (Emax = 22.6±0.9 infusions; final ratio = 2958±539), cocaine (Emax = 20.6±1.2 infusions; final ratio = 2068±456), and methamphetamine (Emax = 15.9±1.1 infusions; final ratio = 912±168). In addition, monkeys responded for significantly longer periods of time when MDPV (14±2hrs) or α-PVP (13±2hr) was available for infusion than when either cocaine (7±1hrs) or methamphetamine (7±1hrs) was available for infusion. CONCLUSION These studies confirm recent reports from rodents, and provide strong evidence that the synthetic cathinones MDPV and α-PVP are more effective reinforcers than cocaine or methamphetamine and that they are capable of maintaining high levels of responding for prolonged periods. The relative strength of these reinforcing effects may account for reports of binge-like patterns of "Bath Salts" use.

Financial Support: Supported by a NIDA research grant [R01DA039146] and the Welch Foundation [Grant AQ-0039].

First Name: Gregory

Last Name: Collins

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: University of Texas Health Science Center

ID: 210
Analysis of existing problematic mobile phone and smartphone use scales

Bethany Harris, Texas A&M University

Abstract Category: Literature Review

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Other

Abstract: Aim: The popularity of smartphones is undeniable in nearly all facets of society. Numerous benefits are attributed to this technology including enhanced and diverse methods of communication, access to all components of the Internet through various applications, and a consolidation of many other forms of existing technology. However, concern has grown over the potential implications of dependency upon and excessive use of smartphones. Due to the growing concerns surrounding the recognized and unrecognized implications of problematic smartphone use and in light of the recent reframing of gambling disorder as a behavioral addiction, great efforts have been made through research to evaluate, label and identify problematic smartphone use and related dysfunction mostly through the development and administration of scales assessing the behavior. Methods: This study thoroughly analyzes 32 existing validated scales that have been developed over the past 13 years to measure and identify smartphone addiction by evaluating their theoretical foundations and their psychometric properties. Conclusion: In addition to many of the scales lacking sufficient internal consistency and test-retest reliability, it was also determined that there is a lack of necessary research supporting the theoretical foundation of most of the scales evaluated. Future research should be conducted to better characterize and define problematic smartphone use so that assessment tools can be more efficiently developed to evaluate the behavior.

Financial Support: Supported by the Department of Psychological and Brain Sciences at Texas A&M University

First Name: Bethany

Last Name: Harris

Degrees: MA MD Ph.D etc:: BS in Cognitive Neuroscience, BS in Psychology

Company Affiliation: Texas A&M University

ID: 211
Decreased regional gray matter volume in male adolescents with substance use disorder and limited prosocial emotions

Janet Kim, University of Colorado

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Imaging

Abstract: Aim: Prior studies have looked at regional gray matter brain differences in adolescents with substance use disorders (SUD); however, SUDs often have many common comorbidities including conduct disorder (CD). CD can be further subtyped as with or without limited prosocial emotions (LPE) in which those with LPE are characterized by high levels of callous-unemotional traits. In this study, we compared regional gray matter volume of male adolescents with SUD and CD-plus-LPE to healthy community youth. Methods: Of 38 male adolescents (15-17 years), 20 had SUD and CD-plus-LPE and 18 were typically developing controls without these conditions. We obtained T1-weighted volumetric magnetic resonance images and used voxel-based morphometric toolbox (VBM8) to analyze regional gray matter volume differences. Results: Compared to controls, adolescents with SUD and CD-plus-LPE were found to have significantly less gray matter volume in two clusters. Cluster 1 involved the left frontal inferior pars triangularis and orbitalis, middle frontal gyrus and Brodmann area 11. Cluster 2 included the right angular gyrus, middle temporal gyrus, supramarginal gyrus, superior temporal gyrus, and a very small portion of precuneus. Conclusions: Compared to typically developing youth, male adolescents with SUD and CD-plus-LPE were shown to have decreased gray matter volume in the ventrolateral prefrontal cortex (vlPFC; Cluster 1), orbitofrontal cortex (OFC; Cluster 1), the temporoparietal junction (TPJ; Cluster 2) and a very small portion of the precuneus (Cluster 2). These areas have been associated with inhibition (vlPFC), reward and valuation in decision making (OFC), and social cognition and perspective taking (TPJ). Our findings are consistent with previous work showing adolescents with SUD and/or CD-plus-LPE may differ from typically developing youth in decision making related to reward, inhibition, and social cognition.

Financial Support: Research support from National Institute of Drug Abuse (NIDA) grant DA031761, the Kane Family Foundation and the Hewit Family Foundation.

First Name: Janet

Last Name: Kim

Company Affiliation: University of Colorado

ID: 212
Associations between state-level policy liberalism, cannabis use, and cannabis use disorder from 2004 to 2012: Looking beyond medical cannabis law status

Morgan Philbin, Columbia University Mailman School of Public Health

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Policy

Abstract: Aims: While cannabis-specific policies have been associated with cannabis use (CU) and related outcomes, it is unclear how a state's broader policy climate might impact CU outcomes. We therefore assessed the association between state-level policy liberalism and past year CU and CU disorder (CUD). Methods: We obtained aggregate state-level prevalence estimates of past-year CU and CUD among past year cannabis users from the 2004-2006 and 2010-2012 National Surveys on Drug Use and Health. We used state-level policy liberalism rankings for 2005 and 2011 (based on policies such as guns, abortion, taxes, and workers' rights) to categorize states as liberal (ranks #1-#20), moderate (ranks #21-#30) and conservative (ranks #31-#50). Age-stratified (12-17, 18-25, 26+) random-effects generalized linear models examined the association between policy liberalism and past-year CU and CUD, controlling for time, medical cannabis law (MCL) status, and state-level demographic and economic characteristics. Results: Liberal states had higher adjusted past-year CU prevalence than conservative states for ages 12-17 (15.10% versus 13.53%; p=0.03) and 18-25 (31.45% versus 28.49%; p=0.01), even when controlling for MCL status and state-level characteristics; there was no difference for ages 26+ (8.02% versus 7.32%). However, CUD prevalence was significantly lower in liberal compared to conservative states for 12-17 year-olds (24.13% versus 27.0%; p < 0 .05) and marginally lower in ages 26+ (9.81% versus 12.26%; p=0.05); there was no difference for ages 18-25 (18.96% versus 19.37%). Conclusion: Liberal states had higher past-year CU prevalence, but lower past-year CUD prevalence compared to conservative states. This discrepancy could occur because CU is less stigmatized in liberal states, which may increase reporting, patient-provider discussions, and use in recreational, non-disordered ways. Future studies should move beyond a one-policy-one-outcome approach (e.g., MCL on CU)—and analyses focused solely on the impact of substance use policies—and incorporate the broader policy climate into measures of environmental context.

Financial Support: R01DA037866; K01DA039804A; T32DA031099

First Name: Morgan

Last Name: Philbin

Degrees: MA MD Ph.D etc:: PhD, MHS

Company Affiliation: Columbia University Mailman School of Public Health

ID: 213
Impact of syndemic conditions on perceived barriers to pre-exposure prophylaxis use among female sex workers along Mexico's northern border

Jennifer Jain, University of California, Department of Medicine

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: AIDS/Immune

Abstract: AIM: Female sex workers (FSWs) experience co-occurring or syndemic conditions (i.e., polydrug use, hazardous alcohol consumption (Alcohol Use Disorders Identification Test score ≥8), client-perpetrated violence (CPV), depression, and sexually transmitted infections [STIs]) that heighten vulnerability to HIV and limit healthcare utilization. We evaluated the hypothesis that syndemic conditions may limit FSWs' uptake of pre-exposure prophylaxis (PrEP), a biomedical HIV prevention strategy, by examining the relationship between syndemic conditions and perceived barriers to PrEP use among FSWs in Tijuana and Ciudad Juarez, Mexico. METHODS: From 2016-2017, 295 HIV-negative FSWs enrolled in a behavioral HIV prevention trial, underwent STI testing and completed surveys on syndemic conditions and perceived barriers to PrEP use related to PrEP attributes, finances, adherence, stigma, and healthcare access. Syndemic scores (0-5) were calculated by summing syndemic conditions experienced by participants. Latent class analysis (LCA) was used to identify homogeneous sub-groups with respect to perceived barriers to PrEP use. Syndemic scores were added to the LCA model to assess their association with sub-group membership using multinomial logistic regression. RESULTS: Participants had a high prevalence of hazardous alcohol consumption (46%), depression (45%), CPV (36%), polydrug use (29%), and STIs (19%). We identified four sub-groups characterized by (1) perceived health care access barriers (7%), (2) perceived financial barriers (15%), (3) multiple perceived barriers (21%), and (4) a low level of perceived barriers (57%) to PrEP use. Relative to not experiencing any syndemic conditions, those experiencing three (adjusted odds ratio [aOR]=2.65, 95% confidence interval [CI]=1.16-6.04) and four or five (aOR=3.99, 95% CI=1.69-9.41) syndemic conditions had a higher odds of membership in the sub-group characterized by multiple perceived barriers than in the sub-group characterized by a low level of perceived barriers. CONCLUSION: Addressing co-occurring syndemic conditions may reduce barriers to PrEP use and maximize PrEP's population-level impact among FSWs along Mexico's northern border.

Financial Support: Supported by grants from the National Institute on Drug Abuse (R01DA039071, K01DA040543) and the UCSD Center for AIDS Research (P30AI036214).

First Name: Jennifer

Last Name: Jain

Degrees: MA MD Ph.D etc:: MPH

Company Affiliation: University of California, Department of Medicine

ID: 215
Prevalence and correlates of multiple substance use disorders among adults in primary care: Results from a multisite study

William John, Duke University School of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Epidemiology

Abstract: Aims: Prior data suggest that some individuals meeting criteria for substance use disorder (SUD) have multiple SUDs, which are associated with poorer prognosis. Addressing multiple SUDs in primary care-based screening and assessment for SUD may serve to improve treatment access, engagement, and outcomes. However, research is needed to identify the specific treatment needs for multiple SUDs in order to inform such efforts. Methods: Data were analyzed from a sample of 2,000 adult (aged ≥18 years) primary care patients recruited across five practices in four states for developing a screening and assessment tool, The Tobacco, Alcohol, Prescription medications, and other Substance [TAPS] Tool study (CTN-0059). Past-year DSM-5 SUDs (tobacco, alcohol, and drug) were assessed by the modified Composite International Diagnostic Interview. Prevalence and correlates of multiple (2 or more) vs. single SUDs were determined. Results: Multiple SUDs were found among 45.8% of those meeting SUD criteria for tobacco, 63.6% for alcohol, 73.8% for marijuana, 87.5% for prescription opioids, 90.2% for cocaine, and 93.9% for heroin. Tobacco use disorder was the most common comorbid SUD, with its prevalence ranging from 53.1% among participants with alcohol use disorder to 72.3% among participants with heroin use disorder. Male sex, younger age, low education, and unemployment were associated with increased odds of multiple SUDs. Greater severity of tobacco and/or alcohol use disorder was associated with having another (non-tobacco; non-alcohol) SUD. Conclusions: The majority of primary care patients who had a past-year SUD met DSM-5 criteria for one or more additional SUDs. Thus, the development and efficacy of screening tools that incorporate multiple SUD measures warrant future investigation.

Financial Support: This study was made possible by research support from the U.S. National Institutes of Health (UG1DA040317; UG1DA013034, UG1DA013035, U10DA013727).

First Name: William

Last Name: John

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Duke University School of Medicine

ID: 217
Who doesn't swab, and why? An analysis of correlates and reasons for not swabbing injection sites among Australians who regularly inject drugs

Sarah Larney, National Drug and Alcohol Research Centre

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Other

Abstract: Aim: Cleaning injection sites with alcohol swabs prior to drug injection reduces injecting-related infections such as abscesses. Better understanding of swabbing behaviours can inform interventions to improve injecting hygiene. We aimed to document the frequency and correlates of swabbing prior to last injection; and explore reasons for not swabbing. Method: Participants were recruited from harm reduction services in eight Australian cities and had injected drugs at least monthly in the past six months. A structured interview was used to collect information on drug use and related issues. Logistic regression was used to identify factors associated with not swabbing at last injection. Results: Of 853 participants (67% male; median age 43 years, range 20-69 years), 28% reported that they 'never' or 'almost never' swabbed injection sites prior to injecting drugs. Similarly, a quarter (26%, n=218) reported that they did not swab prior to their last injection. In univariable analyses, gender, Indigenous status, duration or frequency of injecting, and injecting site were not significantly associated with swabbing. Older age was weakly positively associated with swabbing. In univariable and multivariable analyses, reporting crystal methamphetamine (compared to any other drug) as the last drug injected, past month receptive or distributive syringe sharing, and past month reuse of one's own needle were significantly associated with not swabbing at last injection. Among participants who did not swab at last injection, swabbing was frequently considered unimportant or unnecessary, and among a small number of participants, harmful. Conclusion: A sizeable minority of this sample of people who inject drugs did not regularly swab injection sites, and this was associated with crystal methamphetamine injecting and syringe sharing and re-use. Efforts are needed to increase awareness of the importance of injecting hygiene in preventing injecting-related infections. Responses to increase swabbing may usefully target people who inject crystal methamphetamine.

Financial Support: No specific funding was received for this work. The National Drug and Alcohol Research Centre at UNSW Sydney is supported by funding from the Australian Government under the Substance Misuse Prevention and Service Improvements grant fund.

First Name: Sarah

Last Name: Larney

Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: National Drug and Alcohol Research Centre

ID: 218
Cannabis use disorder among cannabis users by frequency of use in the USA, 2002–2014

Julian Santaella-Tenorio, Columbia University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Epidemiology

Abstract: Aims: Research shows that the prevalence of cannabis use disorder (CUD) among past year marijuana cannabis users has decreased from 2008-2014. We examined whether similar reductions in CUD were observed among marijuana users by different frequency of use patterns. We expected that reductions would not be observed among frequent users due to their high risk of CUD. Methods: We used data from the 2002-2014 National Survey on Drug Use and Health. Frequency of cannabis use was defined as: 1-29 days, 30-99 days, 100-299 days, 300+ days in past year. CUD was defined as meeting DSM-IV criteria for cannabis abuse or dependence. Age categories included: 12-17, 18-25 and 26+. CUD trends were examined across categories of frequency of cannabis use and age groups. Yearly trends were tested using weighted linear regression models adjusted by sex and race/ethnicity. Results: From 2002 to 2014, the proportion of frequent cannabis users (using 100 days or more) remained relatively stable over time among those ages 12-17 (range: 6.0% to 7.6%) and increased after 2008 among those 18-25 (16.3% to 19.7%) and 26+ (7.0% to 12.4%) (p's < 0 .05). The prevalence of CUD decreased among 12-17 year-olds using marijuana 300+ days (67.7% to 34.1%; p < 0 .05), 100-299 days (47.7% to 37.7%; p < 0 .05), and 30-99 days (31.7% to 26.2%; p < 0 .05), but not among those using cannabis 1-29 days (8.2% to 7.4%; p=0.07). Reductions in CUD prevalence were also observed in those 18-25 and 26+ across all marijuana use frequencies. Conclusions: Contrary to expectations, reductions in the prevalence of CUD were observed across all categories of cannabis use frequency. Potential drivers of this reduction should be explored, including changes in reporting for some CUD criteria items (e.g. getting in trouble with the law) that may be influenced by changes in legislation regarding marijuana use.

Financial Support: NIDA grant R01DA037866 (Martins)

First Name: Julian

Last Name: Santaella-Tenorio

Degrees: MA MD Ph.D etc:: MPH

Company Affiliation: Columbia University

ID: 219
Opioid prescriptions in the year prior to admission to opioid use disorder treatment

Gillian Leichtling, HealthInsight

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: Aims: A majority of individuals who use heroin transition from prescription opioids, yet antecedent opioid prescribing has not been well described. We investigated patterns of opioid prescribing prior to new treatment episodes for heroin or prescription opioid use disorder (OUD). Methods: We linked 2015-2016 admissions in Oregon's Treatment Episodes Data Set to Medicaid claims data to summarize patient characteristics and opioid prescriptions preceding treatment among individuals admitted for heroin and prescription OUD. To ensure complete capture of Medicaid data, we restricted the study sample to individuals with one year of continuous Medicaid enrollment prior to treatment admission. Results: Among 3151 patients treated for OUD, 51% reported heroin alone, 38% reported prescription opioids alone, and 11% reported both. In patients reporting use of only one substance (heroin or prescription opioids; n=2813), prescription opioid users were more likely than heroin users to be female (60.5% vs. 49.9%; $p < 0$ .001) and live in rural zip codes (44.8% vs. 28.5%; $p < 0$ .001). Methamphetamine use was higher among heroin users (37.6% vs 30.2%; $p < 0$ .001). Prescription opioid users were more likely to have diagnoses for pain conditions (arthritis, back pain, headache) and mental health disorders (mood disorders). In the year prior to admission, opioid prescriptions were common for both groups (81% prescription opioid users vs. 60% heroin users; $p < 0$ .001). However, buprenorphine prescriptions were uncommon (10% vs. 9%; p=0.221). Among those with prescribed opioids (n=1941), those admitted for prescription OUD filled more prescriptions over the year (9.4 vs 6.0; $p < 0$ .001) and were more likely to use 3+ prescribers (53% vs 36%; $p < 0$ .001) or pharmacies (29% vs 22%; $p < 0$ .001). Use of high dose prescription opioids was similar between groups (18% vs 16%; $p < 0$ .001). Conclusions: While patients entering treatment for prescription OUD exhibited a higher intensity of opioid prescriptions prior to admission, opioid prescriptions were also prevalent among heroin users.

Financial Support: U01CE002786; UG3DA044831, UG1DA015815

First Name: Gillian

Last Name: Leichtling

Degrees: MA MD Ph.D etc:: BA

Company Affiliation: HealthInsight

ID: 220
Cannabis and cannabinoids for the treatment of people with chronic non-cancer pain conditions: A systematic review and meta-analysis

Emily Stockings, National Drug and Alcohol Research Centre, University of New South Wales

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Abstract Category: Literature Review

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Treatment

Abstract: AIM: To examine evidence for cannabinoids for treating chronic non-cancer pain (CNCP). METHODS: Systematic review of MEDLINE, Embase, PsycINFO, Cochrane and clinicaltrials.gov to identify RCTs, non-RCTs, quasi-experimental, before-and-after studies, prospective and retrospective cohorts, case-control studies, cross-sectional studies, observational studies and N-of-1 studies testing any type of cannabinoid for the treatment of CNCP. Outcomes were based on Initiative on Methods, Measurement, and Pain Assessment in Clinical Trials (IMMPACT) guidelines and included: pain intensity, physical functioning, emotional functioning, global impression of change, adverse events and withdrawals. Continuous outcomes were pooled using fixed-effects generic inverse variance meta-analysis, expressed as standardised mean differences (SMDs). Dichotomous outcomes were summarised as odds ratios (ORs) using Mantel-Haenszel fixed-effect models. RESULTS: 89 publications containing 100 studies were eligible, including 24 parallel RCTs, 23 cross-over RCTs and 53 observational studies. Forty-five studies examined neuropathic pain (13 multiple sclerosis (MS)-related, 32 non-MS-related), seven studies examined fibromyalgia, one rheumatoid arthritis, and 47 other or mixed CNCP. Across RCTs, PERs for 30% reduction in pain intensity were 29.7% (cannabinoids) vs 26.1% (placebo), number needed to treat (NNT) was 22 (95%CI 14-49); for 50% reduction in pain, PERs were 18.6% vs. 14.2%; NNT was 26 (95%CI 15-338). Pooled change in pain intensity (SMD -0.14, 95%CI -0.21, -0.08) was roughly equivalent to 3mm on a 100mm visual analogue scale greater than placebo. In RCTs, PERs for all-cause AEs were 80.2% vs. 65.2%; number needed to harm (NNH) was 6 (95%CI 5-9). There were no significant impacts upon physical or emotional functioning, and low-quality evidence of improved sleep and global improvements. CONCLUSION: Evidence for effectiveness of cannabinoids in CNCP is limited. Effects suggest NNT to improve pain are high, and NNH low, with limited to no impact on other domains. It appears unlikely that cannabinoids are highly effective medicines for CNCP.

Financial Support: ES is supported by an Australian National Health and Medical Research Council (NHMRC) Early Career Fellowship (#1104600).

First Name: Emily

Last Name: Stockings

Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: National Drug and Alcohol Research Centre, University of New South

Wales

ID: 221
Opioid misuse among Latino primary care patients in Los Angeles

Melvin Rico, University of California, Department of Family Medicine

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Prevention

Abstract: Aim: To examine the rates and correlates of opioid misuse among predominantly Latino primary care patients and the patterns of polysubstance misuse that could put them at greater risk for opiate-related overdose. Methods: A Cross-sectional study investigating opioid use in two primary care clinics of a federally qualified health center (FQHC) in Los Angeles. 2,504 adult patients in the clinic waiting rooms screened with the WHO AASSIST (88.8 % response rate). Patients anonymously self-administered a computerized version of the WHO ASSIST from March to October 2013. Results: Mean age was 38.8 years, 92.7% were Latino and 67% female. Overall, 4.6% (n=106) of patients misused opioids (moderate-to-high risk level; ASSIST >4). Among, moderate-to-high risk opioid users, many were also using other substances at a risky level: 53% marijuana, 45% alcohol (ASSIST >12), and 40% sedatives. About 72% of the patients using opioids at a risky level had a comorbid chronic medical condition. In the logistic regression analysis, females had a lower odds (adjusted odds ratio (AOR) = 0.63, 95% confidence interval (CI): 0.49, 0.81; p
Financial Support: This research, the “US-Mexico Binational Quit Using Drugs Intervention Trial” (UCLA-Mexico Binational QUIT Study), was primarily funded by grants from NIDA (3P30DA027828-02S1; P30DA027828- 02S2) [supplements to the NIDA Center for Prevention Implementation Methodology (Ce-PIM) for Drug Abuse and HIV Sexual Risk Behavior (P30-DA027828 NIDA/OBSSR, PI CH Brown)] and the U.S. State Department’s Bureau of International Narcotics and Law Enforcement (INL) (SMX53012-GR186).

First Name: Melvin

Last Name: Rico

Degrees: MA MD Ph.D etc:: B.S.

Company Affiliation: University of California, Department of Family Medicine

ID: 223
A five-day outpatient induction onto XR-naltrexone in patients with opioid use disorder

Mohammad Sibai, New York State Psychiatric Institute

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: AIM: A relatively new treatment for opioid use disorder in the form of extended release naltrexone (XR-NTX) has been associated with significantly greater opioid abstinence, higher treatment retention, and a marked reduction in craving compared with placebo. One of the main barriers to initiating XR-NTX treatment is the need for a 7-10-day abstinence from opioids. We evaluated a method to initiate XR-NTX within 5 days (Mon-Fri) on an outpatient basis. METHODS: Study participants (N=44) were on average 36.3 years old (range=23-60 years), mostly male (81%), and White (61.4%). At baseline, 67% of participants reported a daily use of 6 bags of heroin (240 mg morphine equivalents) or greater. Participants were asked to abstain from opioids for at least 12 hours, beginning Sunday afternoon, before presenting to the clinic on Monday (Day 1) to receive buprenorphine 8mg, followed by a day of washout (Day 2). Ascending doses of naltrexone, starting with 1 mg, were given on Days 3, 4, and 5. An injection of XR-naltrexone was given on Day 5, approximately 1 hour after receiving a 25 mg dose of naltrexone. Results: Of the 44 subjects that consented to the study, 59% successfully received XR-NTX (25 participants received it on Day 5, and one on Day 6). XR-NTX was initiated in 51% of heroin users and 78% of RX opioid users. There was a significant decrease in withdrawal scores between Day 1 and 3 (p=0.001), and Day 1 and 4 (p= 0.043). Opioid craving significantly decreased over the 5-day detox period (N=32; cravings: p=0.019). Conclusion: These results support the feasibility of a 5-day detoxification, as an outpatient regimen for opioid detoxification and XR-naltrexone induction. By shortening the period of abstinence and mitigating the severity of withdrawal symptoms experienced during detoxification, this strategy has the potential to considerably increase patient access

Financial Support: NIDA R01DA030484 (Bisaga, PI)

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Last Name: Sibai

Degrees: MA MD Ph.D etc:: MA

Company Affiliation: New York State Psychiatric Institute

ID: 224
Recent cannabis use and advanced liver fibrosis among HIV-infected heavy drinkers.

Daniel Fuster, Hospital Universitari Germans

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: AIDS/Immune

Abstract: Background: Cannabinoid receptors play a role in acute and chronic liver injury, but human studies addressing the impact of cannabis use on liver fibrosis have shown mixed results. We aimed to analyze the association between any cannabis use and advanced liver fibrosis (ALF) in a cohort of Russian HIV-infected individuals with heavy alcohol use (>NIAAA risky drinking limits) and high prevalence of hepatitis C virus (HCV) coinfection. Methods: Baseline data from participants of the ZINC study, a trial of HIV-infected Russian patients without prior antiretroviral therapy were included. Cannabis use during the prior month was assessed at study entry. Advanced liver fibrosis was assessed with non-invasive methods and was defined as FIB-4>3.25 and/or APRI>1.5, transient elastography was used to detect advanced liver fibrosis among participants with FIB-4 values in the intermediate range (between 1.45 and 3.25). Results: Participants (n=249) in this cohort of heavy drinkers were mostly male (72.6%); young (median age of 33.9 years); infected with HCV (87.9% HCV antibody positive) and not immunosuppressed (median CD4 count 462). Cannabis use was uncommon (12.4) and the prevalence of advanced liver disease was 21.7%. The prevalence of advanced liver disease was similar among those who used cannabis compared to those who did not (21.7% vs. 25.8%). While cannabis users were mostly male (90.3%) the median age and prevalence of heavy drinking, HCV infection, obesity and median CD4 cell counts were similar for both cannabis users and non-users. After adjusting age, sex, heavy drinking, BMI and CD4 cell count in logistic regression models, cannabis use was not significantly associated with prevalent advanced liver fibrosis (Adjusted Odds ratio: 1.28, 95% confidence interval: 0.53-3.12, p=0.59). Conclusion: In this cohort of HIV-infected heavy drinking Russians we did not detect an association between any recent cannabis use and advanced liver fibrosis.

Financial Support: Partially funded by grants from the National Institute on Alcohol Abuse and Alcoholism (grants U01AA020780, U01AA021989, U24AA020778 and U24AA020779), Ministry of Health, Social Services and Equality, National Plan on Drugs, Spain (grant 2015/027); Ministry of Economy and Competitiveness, Institute of Health Carlos III, Fondo de Investigación Sanitaria, Spain (grant PI17/00174), and Ministry of Economy and Competitiveness, Institute of Health Carlos III (RETICS RD16/0017/0003), European fund for regional development (FEDER).

First Name: Daniel

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Degrees: MA MD Ph.D etc:: MD, PhD

Company Affiliation: Hospital Universitari Germans

ID: 225
"Reverse Transitions" from injecting to non-injecting drug use during the US opioid epidemic

Don Des Jarlais, Icahn School of Medicine at Mount Sinai

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: Aims: The US opioid epidemic has included large numbers of persons who transitioned from non-injecting to injecting drug use. There is a common belief that once people begin injecting, they will continue injecting as their dominant mode of drug administration. We examine persons who "reversed transitioned" back to non-injecting heroin and cocaine use during the US opioid epidemic. Methods: Both injecting and non-injecting drug users were recruited from persons entering the Mount Sinai Beth Israel substance use treatment programs in New York City from 2000 to 2017. Informed consent was obtained, a structured interview along with HIV and HCV testing were conducted. Former persons who inject drugs (fPWID) were defined as persons whose first injection was in 2000 or later but who had used heroin or cocaine without injecting during the 6 months prior to treatment entry. Persons who were currently injecting (cPWID) were defined as persons whose first injection was in 2000 or later and had injected heroin or cocaine during the 6 month prior to treatment entry. Results: 111 fPWID and 956 cPWID were recruited. fPWID were older (mean age 40 vs. mean age 34), and more likely to be African-American (28% vs. 12%). fPWID reported a median of 1 year, a mean of 2.6 years of injecting, and a mean of 4.7 years, median of 3 years, since their last injection. The most common reasons for ceasing to inject were: "don't like needles" (30%), concern about stigmatization (16%), "tired of injecting" (15%), and concern about health effects other than HIV (6%). Conclusions: Developing a more complete understanding of "reverse transitions" may provide important insights into new methods of specifically reducing harms associated with injecting during the current opioid epidemic, and of behavior change in general among persons who use drugs.

Financial Support: National Institute on Drug Abuse R01 DA003574

First Name: Don

Last Name: Des Jarlais

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Icahn School of Medicine at Mount Sinai

ID: 226
A missing voice: the consent practice in school-based drug prevention programs in Taiwan

Chuan-Yu Chen, National Yang-Ming University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Prevention

Abstract: Aim Health and social work professionals gradually endorsed the shift toward the paradigm of evidence-based intervention and policy evaluation. However, when the target population is minor, ascertainment difficulties often arise in the process demanding the active parental consent, particularly true if the sensitive or stigmatized topics are involved (e.g., substance use). This study aims to investigate potential parents-and individual factors associated with the "opt-in" in universal drug preventions among children in Taiwan. Methods A city-based administrative survey was conducted in 42 public elementary schools in Keelung city to assess family characteristics, school adjustment, and wellbeing among 4th graders (aged 10-11, n=2618) in June 2017. Three months later, the school-based curriculum-integrated drug prevention program has sent an introductory letter and informed consent to all 5th graders to collect individual-based assessment yearly for prevention evaluation. Via the data linkage between survey and informed consent, a total of 2561 (97.8%) were subsequently identified. Descriptive and logistic regression analyses were used for association evaluation. Results Over 11% of pupils did not turn in the informed consent (n=278) at 5th grade. Among those whose forms signed by a parent or guardian, the positive rate was 38.9% (n=947). Children with male gender (Odds Ratio [OR]=1.56), the exposures to household violence (OR=1.42), or the feelings of being neglected (OR=1.92) were more likely to have the absent informed consent. As compared with positive parental consent, having lower parental education, primary caregivers other than parents, tobacco & betel nut initiation, and low social trust were associated with increased odds of negative parental consent by 12%~46%. Conclusions Upon opt-in consent procedures, the absent or negative informed consent appeared positively linked with the disadvantaged family background, unfavorable parenting styles, and positive substance involvement. Our results highlighted possible ascertainment bias and indicated potential needs to modify the informed consent practice and to address methodological concerns.

Financial Support: CTBC charity foundation; Ministry of Science and Technology

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Degrees: MA MD Ph.D etc:: Ph.D

Company Affiliation: National Yang-Ming University

ID: 227
The impact of buprenorphine and methadone on mortality: A primary care cohort study in the United Kingdom

Miranda Cuming, University of Bristol

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: BACKGROUND. We estimate whether opioid substitution treatment (OST) with buprenorphine or methadone is associated with a greater reduction in the risk of all-cause mortality (ACM) and drug-related poisoning (DRP) mortality. METHODS. Cohort study of 11,033 patients from UK primary care (1998-2014) followed-up 30,410 person-years. 17,373 (61%) OST episodes with methadone; 9173 (39%) with buprenorphine. DRP cause of death available for 5,935 patients (54%) followed-up 16,363 person-years. Poisson regression modelled mortality by treatment period with an interaction between OST type and treatment period to test whether ACM or DRP differed between methadone and buprenorphine. Inverse probability weights adjusted for confounding and balanced characteristics of patients prescribed methadone or buprenorphine. RESULTS. ACM and DRP rates were 1.93 and 0.53 per 100 person-years respectively. DRP was elevated in first 4 weeks of treatment (Incidence Rate Ratio [IRR] 1.93 95%CI 0.97-3.82), first 4 weeks (IRR 8.15 95%CI 5.45-12.19) and rest of time out of treatment (IRR 2.13 95%CI 1.47-3.09) compared to mortality risk from 4 weeks to end of treatment. Patients on buprenorphine compared to methadone had lower ACM rates in each treatment period. After adjustment there was evidence of a lower DRP risk for patients on buprenorphine compared to methadone at treatment initiation (IRR 0.08 95%CI 0.01-0.48) and rest of time on treatment (IRR 0.37 95%CI 0.17-0.79). Treatment duration (mean and median) was shorter on buprenorphine than methadone (173 and 40 vs 363 and 111 respectively). Model estimates suggest there was a low probability that methadone or buprenorphine reduced the number of DRP in the population: 28% and 21% respectively. CONCLUSIONS. In UK primary care OST with buprenorphine is associated with a lower risk of all-cause and drug related poisoning mortality than methadone. In the population, buprenorphine is unlikely to give greater overall protection because of the relatively shorter duration of treatment.

Financial Support: The study was supported by NIHR HS&DR (12/136/105); NIHR Health Protection Research Unit in Evaluation & NIHR BRC

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ID: 228
Suicide attempts and death among heroin-involved women seeking methadone treatment in Taiwan

Wan-Ting Chen, National Health Research Institutes

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: AIM Suicide is a leading cause of unnatural death among heroin users, and such risk was especially prominent among women. When heroin use disorders reached medical attention, suicidal behaviors pose treatment challenge. The present study aims to investigate sociodemographic and clinical factors predicting suicide attempts and death among female heroin users after MMT enrollment. METHODS On the basis of the 2004-2009 National MMT database in Taiwan, we identified a retrospective cohort comprising 4314 heroin-dependent women who received methadone treatment in the period of 2006-2009. Healthcare records were obtained from the National Insurance Research Database (NHIRD) and suicidal death was ascertained from the National cause of death data. Survival analyses were used to estimate the risk of suicide attempts and death within three and seven years of the initial MMT enrollment, respectively. RESULTS An estimated 3.3% heroin-involved women had suicide attempts and 1.2% females died by suicide after receiving methadone treatment. The hazard of suicide attempts increased over time, with the peak emerging near the end of 12th month after treatment; the hazard of suicidal death had a similar curve. Women with younger ages (Hazard Ratio [HR]= 1.83) and employed status (HR= 1.52) were more likely to commit suicide attempts. Prior history of mental disorder, alcohol use disorder, and emergency department visit were associated with increased hazard of suicide attempts by 6~134%. In relation to suicidal death, moderate variation was found in sociodemographic predictors: being single and having no employment may elevate the risk of suicidal death accordingly by 216% and 57%. CONCLUSION Our finding suggested that for female heroin users the unmet needs in medical care should be continuously assessed over treatment course. The provision of social services may be tailored to one's social engagement and family structure.

Financial Support: The National Health Research Institutes [grant number 06A1-NPSP03-021 and NP-106-SP-05].

First Name: Wan-Ting

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Company Affiliation: National Health Research Institutes

ID: 229
Evaluation of purified cannabidiol (CBD) in rhesus monkeys that self-administer midazolam

Royston Gray, GW Pharmaceuticals PLC

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Marijuana/Cannabinoids

Topic: Dependence

Abstract: AIM Cannabidiol (CBD) is a constituent of the cannabis plant that possesses significant therapeutic potential. This study assessed CBD in monkeys as part of a comprehensive evaluation of abuse potential, which included comparing plasma levels of CBD in monkeys to those obtained following therapeutic dosing in humans. METHODS CBD was evaluated in five monkeys self-administering 0.010 (n=3) or 0.032 (n=2) mg/kg/infusion of midazolam (i.v.) under a fixed ratio schedule (FR30). When responding for midazolam was stable (infusions varying by less than + 20% over three consecutive sessions), midazolam was replaced with CBD vehicle (1:1:9 ethanol:emulphor:saline) or CBD (0.10, 0.32, 1.00, and 3.20 mg/kg/infusion i.v.). Vehicle and each dose of CBD was examined for at least four sessions and until responding was stable. Blood samples were obtained from four other monkeys following bolus injections of CBD (0.32 - 3.20 mg/kg, i.v.), and plasma levels were quantified using HPLC/MS/MS. RESULTS Monkeys received an average (+ 1 SEM) of 12.9 ± 2.1 infusions per session of midazolam and 1.1 ± 0.5 infusions per session of vehicle. Responding for CBD was not statistically different from vehicle, with the maximum number of infusions received per session varying from 0.2 + 0.1 (3.2 mg/kg/infusion) to 0.60 + 0.30 (0.32 mg/kg/infusion). When each of the three largest doses of CBD was given as a bolus i.v. injection, plasma Cmax values were 478 ± 66, 1730 ± 173, and 5530 ± 421 ng/ml; these values were up to 12-fold higher than those obtained in humans receiving CBD therapeutically. CONCLUSION In monkeys that self-administered midazolam, CBD did not function as a positive reinforcer even when plasma levels exceeded those obtained in humans using CBD therapeutically. Given the predictive validity of this procedure to human substance abuse, these results suggest that CBD is unlikely to be abused.

Financial Support: GW Research Ltd.

First Name: Royston

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Degrees: MA MD Ph.D etc:: Bsc (Hons) Pharmacology

Company Affiliation: GW Pharmaceuticals PLC

ID: 230
Problematic cybersexual behaviours: The implication of borderline personality disorder and childhood trauma

Servane Barrault, CHRU de Tours, Clinique Psychiatrique Universitaire

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Dependence

Abstract: Aim: Problematic cybersexual behaviours, including addiction and addiction risk, are a mental health reality, despite conceptual difficulties and diagnostic questions related to them. The wide expansion of the Internet, making sexual content and activities easily accessible and available, may facilitate and accelerate the development of excessive practices, as in other addictions. The literature underlines etiologic factors for sexual addiction such as childhood trauma and borderline personality disorder, but there is, to our knowledge, no study assessing those variables together among individual with online sexual activities. Methods: We recruited 235 voluntary participants, with an average age of 22.8 years (±6.2), in forums dedicated to discussion about online sexual activities. Participants were required to be at least 18 years old and to engage regularly (ie. at least once a week) in cybersexual activities. They completed a sociodemographic questionnaire, the Addictive Behaviours Test (TCA) which is suitable for cybersexual addiction, a subscale of the Personality Disorder Questionnaire 4 (PDQ-4 +) evaluating borderline personality disorder, and the Childhood Experience of Care and Abuse (CECA) to assess childhood trauma. Results: In our population, we found a 19.5% prevalence of problematic cybersexual behaviours. Male participants were more likely to display problematic cybersexual behaviours. The prevalence of borderline personality disorder was higher among participants with problematic cybersexual behaviours (43.5%) than among participants with no cybersexual difficulties (28.5%). Furthermore, 36% of participants with a borderline personality disorder reported sexual abuses in their childhood. The results confirm our hypotheses that traumatic life events and borderline personality disorder are linked to problematic cybersexual behaviours. Discussion: Our results are consistent with the existing literature and add some leads of understanding about etiological factors. They underline the links between cybersexual addiction, borderline personality disorder and traumatic life events, opening up new avenues for research and clinical issues.

Financial Support: none

First Name: Servane

Last Name: Barrault

Degrees: MA MD Ph.D etc:: Ph.D

Company Affiliation: CHRU de Tours, Clinique Psychiatrique Universitaire

ID: 231
Extremely low HIV incidence among PWID: Terminology, high/middle income settings, methodology, and addressing new outbreaks

Don Des Jarlais, Icahn School of Medicine at Mount Sinai

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: Aims: "Combined prevention and care for HIV for persons who inject drugs (PWID)" has been remarkably successful in reducing many high and some middle-income settings. These positive developments have led to new problems: how to measure low HIV incidence, how to describe low incidence situations without leading policy makers to withdraw resources, and how to prepare for and address possible new outbreaks of HIV among PWID. These issues need to be addressed for long-term control of HIV infection among PWID. Methods: A literature review was conducted of various terms used to describe very low incidence situations, including "control of HIV," "elimination of HIV," "ending the epidemic," and the "90-90-90" goals. Two case studies of measuring low HIV incidence (Hai Phong, Vietnam, middle-income setting and New York City, USA, high income setting) are described. Comparative analyses were conducted of five recent HIV outbreaks among PWID in high-income settings. Results: Common problems with the terms used are that they may be actively misleading for policy makers and the general population, and possible implications that HIV among PWID is "over" and that it is safe with to shut down prevention programs. Long-term, expensive cohort studies and newly reported cases of HIV among PWID were used to measure low incidence rates in both Hai Phong and New York City. These measures were consistent in both cities—all measures showing Incidence < .05/100 PY. Comparisons of recent outbreaks showed outbreaks associated with: 1) inadequate prevention programs, 2) complacency towards HIV, and 3) rapid changes in patterns of injecting drug use. Conclusion: The history infectious diseases shows cycles of control of epidemics followed by withdrawal of resources followed by new epidemics. The conditions for such a cyclical pattern are now developing for HIV infection among PWID.

Financial Support: NIH/NIDA R01 DA041978 NIH/NIDA R01 DA003574

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Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Icahn School of Medicine at Mount Sinai

ID: 232
Alcohol use among individuals with prescription opiate use disorder: The role of distress tolerance and gender

Amanda Gilmore, Medical University of South Carolina

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Sex Differences

Abstract: Aim: The current study examined alcohol use among individuals with prescription opiate use disorder (OUD) based on distress tolerance and gender. It was hypothesized that individuals with more distress tolerance would use alcohol on less days and would use less alcohol compared to those with less distress tolerance after controlling for mental health symptoms. It was also hypothesized that this association would differ based on gender. Methods: A total of 122 individuals with prescription opiate use disorder participated in the current study by completing questionnaires within a larger study. A regression model was conducted with percent alcohol use days and amount of use on alcohol use days in the past 30 days as outcomes with gender, distress tolerance, age, employment status, marital status, depression symptoms, current posttraumatic stress disorder diagnosis, and the interaction between gender and distress tolerance as predictors. Results: Men (B = -.16, p = .04), unemployment (B = .17, p = .04), and less severe depressive symptoms (B = -.27, p = .04) predicted alcohol use days in the past 30 days. Further, there was a significant interaction between gender and distress tolerance (B = -.57, p = .03) such that more distress tolerance was associated with less alcohol use days among women (B = -19.22, p = .01) but there was only a trend between distress tolerance and alcohol use days among men (B = -8.67, p = .05). In relation to amount of alcohol use on days of use in the past 30 days, only gender was associated with more alcohol use (B = -.21, p < .01), with men using more alcohol than women. Conclusion: These findings suggest that distress tolerance skills should be assessed among individuals, and especially women, with OUD to reduce the likelihood of co-occurring prescription opiate use and alcohol use.

Financial Support: Data collection was supported by a NIDA grant (K23DA021228; PI: Back) and poster preparation was supported by (K23DA042935).

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Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: Medical University of South Carolina

ID: 233
Symptoms of depression, anxiety and insomnia in opioid dependent individuals receiving either long-acting naltrexone injections or oral buprenorphine-naloxone. A randomized clinical trial.

Zill-E-Huma Latif, Akershus Universitetssykehus

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: AIM: Switching from daily use of illicit opioids or opioid maintenance treatment to XR-NTX will not worsen present symptoms of insomnia, anxiety and depression among opioid dependent individuals. METHODS: We performed A prospective clinical study of opioid-dependent men and women aged 18-60 years, randomized to 12 weeks treatment with either four-weekly extended release naltrexone injections 380mg (n=71) or daily oral buprenorphine-naloxone 4-24mg flexible dose (n=72), followed by a nine month open treatment study with either drug by the participant`s choice. The study took palce in outpatient addiction clinics at five urban hospitals in Norway. Symptoms of sleep, anxiety and depression were assessed 4-weekly using the Insomnia Severity Index and the SCL-25 inventory. Mixed models and bivariate regression models were applied. RESULTS: Participants receiving XR-NTX showed a significant improvement in both anxiety and insomnia, while both treatment groups showed an improvement in depression scores. In the 36-week follow-up period, no significant difference was found between the initial treatment groups.There was a significant relationship between anxiety symptoms and use of benzodiazepines (p to years of education or age. Total anxiety- and depression score was significantly correlated with total sleep score (p CONCLUSION: Treatment with XR-NTX did not increase or aggravate symptoms of insomnia, anxiety or depression compared to treatment with BP-LNX, rather showed an improvement in such symptoms. Presence of insomnia, anxiety or depressive symptoms should not be a hindrance for initiating treatment with XR-NTX in opioid dependent individuals.

Financial Support: Norwegian Research Council , Western Norway Health Authority and University of Oslo

First Name: Zill-E-Huma

Last Name: Latif

Degrees: MA MD Ph.D etc:: MD

Company Affiliation: Akershus Universitetssykehus

ID: 234
Craving, non-opioid drugs and alcohol use by HIV-positive patients with opioid use disorder stabilized on naltrexone

Elena Blokhina, First Pavlov State Medical University of St. Petersburg

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Dependence

Abstract: AIM: Relapse soon after detoxification is a significant problem in the treatment of opioid use disorder (OUD). Evidence suggests craving, alcohol and non-opioid drug use may precipitate relapse. Here, we evaluated craving for opioids and use of alcohol and non-opioid drugs in HIV positive patients with OUD on oral (ON) or naltrexone implant (NI). METHODS: Recently detoxified, HIV+ patients with an OUD starting ART were randomly assigned to 12-months treatment with NI + oral placebo (n=100), or ON + placebo implant (n=100). Monthly assessments included a Visual Analog Scale (10-points scale) of craving for opioids, Time Line Follow Back (TLFB) for alcohol and drugs, and urine testing for opiates, cocaine, amphetamines, marijuana, benzodiazepines, and barbiturates. Outcomes were analyzed using ANOVA repeated measures with Tukey test for between group comparisons. RESULTS: Baseline characteristics were similar between the groups. Craving was significantly reduced from 2.7±2.9 at baseline to 0.8±2.2 at 12 months among NI patients compared to an increase from 2.6±2.8 baseline to 3.8±9.3 for ON ($F_{18,1874} = 1.62$, $p < 0 .05$). Over the course of the study the TLFB and urine drug test data were internally consistent. According to the TLFB, the cumulative proportion of cannabis and amphetamine use was higher in ON than NI (15.3% ON vs 8.6% NI for cannabis, p=0.0001; 12.4% ON vs 8.1% NI for amphetamine, p=0.001) with no significant differences between groups for other substances. The mean number of grams of ethanol per day consumed over the 12-months was lower in those randomized to NI than to ON [M±SD] (5.3±19.6 vs 8.8±44.1 respectively; p=0.047). CONCLUSION: HIV-positive opiate addicts on NI has less opioid craving. The lower amphetamine and alcohol compared with ON provide additional rationale for using this formulation.

Financial Support: First Pavlov State Medical University of St.Petersbur, Russia

First Name: Elena

Last Name: Blokhina

Degrees: MA MD Ph.D etc:: MD, PhD

Company Affiliation: First Pavlov State Medical University of St. Petersburg

ID: 235
Development of a qualitative coding methodology to assess motivations for use of suboxone film

Stephen Butler, Inflexxion, Inc.

Abstract Category: Program Descriptions

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: Aim: To develop a qualitative coding methodology for examination and characterization of motivations behind the use, misuse and abuse of Suboxone film. Methods: Systematically collected data from online discussion forums among a sentinel population of recreational drug abusers are stored in the Web Informed Services (WIS) Internet Monitoring archive. A random sample of WIS posts pertaining to Suboxone film were reviewed to determine the various motivations for use, misuse and/or abuse. The manually coded posts by two human reviewers were compared, and kappa was calculated to establish interrater reliability. Each coder reviewed the sample of Suboxone film motivation posts and assigned one or more motivation categories related to the post content. The six non-mutually exclusive motivation categories (use to avoid withdrawal, use for pain relief, tapering from other drugs, opioid addiction treatment, recreational use, and 'other' use) were the basis of the coding methodology, and subsequently applied to the pilot qualitative analyses. Results: During the one-year period from July 1, 2015 to June 30, 2016, a total of 493,839 posts were catalogued in the WIS archive. A low number of posts referenced motivations for use of Suboxone film 0.1% (n = 517). Among the sample of 200 Suboxone film motivation posts, there was perfect agreement for the opioid addiction treatment and pain motivation categories (κ=1.00), and near perfect agreement for the withdrawal and tapering motivation categories (κ=.99), as well as the recreational and other motivation categories (κ=.97). Conclusion: The coding methodology provides reliable context for understanding the motivations behind Suboxone film use, and evaluates the feasibility of qualitative analysis of motivation as a foundation for establishing methodology. Subsequent analyses are ongoing to examine motivation to use online discussion among a larger sample and over a several years, in order to further establish and examine the motivation profiles for Suboxone film.

Financial Support: Inflexxion, Inc., Waltham, MA Indivior PLC, Richmond, Virginia

First Name: Stephen

Last Name: Butler

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Inflexxion, Inc.

Contact Title: Senior Vice-President & Chief Science Officer

ID: 236
Tolerance of deviance in early adolescents with prenatal cocaine exposure: Latent classes, irritability and risk behaviors

June-Yung Kim, Case Western Reserve University, Jack, Joseph and Morton Mandel School of Applied Social Sciences

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Behavior

Abstract: Aim: Problem behavior theory states that youth tolerance of deviance (TOD) precedes their risky behaviors in general populations. To test this in youth with prenatal cocaine exposure (PCE), we: 1) identified patterns of TOD in PCE early adolescents and 2) validated TOD latent classes compared to individual characteristics and behavioral outcomes. Elevated TOD classes were hypothesized to have greater substance abuse risk factors. Methods: Using data from 306 9 through 12-year-olds (153 PCE, 153 no PCE; 51.3% girls) recruited at birth to study PCE effects, latent class analysis (LCA) was conducted on 7 TOD items from the Assessment of Liability and Exposure to Substance Use and Antisocial Behavior Scale (ALEXSA) at each age. Multinomial logistic regression estimated significance of gender, PCE and irritability at age 11 in determining 12-year class membership. Early substance use (≤12yrs) and sexual intercourse (< 1 5yrs) and substance use at age 15 were respectively regressed on the emergent latent classes. Results: Three latent classes were replicated among ages: Tolerance of All Deviance (TAD; 12%), Tolerance of Impulsive Deviance (TID; 30%), and Intolerance (INT; 58%). PCE (OR=2.5, 95%CI=1.1-5.9, p
Financial Support: NIDA R01-07957

First Name: June-Yung

Last Name: Kim

Degrees: MA MD Ph.D etc:: MA

Company Affiliation: Case Western Reserve University, Jack, Joseph and Morton Mandel School of Applied Social Sciences

ID: 237
Correlates of re-entry employment among rural female drug-involved offenders

Matt Webster, University of Kentucky

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Other

Abstract: AIM: Previous research has shown an association between employment and decreases in drug use and criminal justice involvement; however, few studies have examined employment correlates in rural female drug-involved offenders, a population that faces significant employment barriers. Consequently, the present study examines a sample of rural female drug-involved offenders to: 1) identify pre-jail correlates of re-entry employment and 2) explore the relationship between employment status and re-entry drug use and criminal justice involvement.
METHODS: Participants from three rural jails were randomly selected, screened, and consented. During a face-to-face baseline and follow-up interview 6 months post-release in the community, demographic, drug use, criminal justice involvement, and employment information was collected. Baseline demographic, drug use, and criminal justice involvement were correlated with follow-up employment status. Then, participants who reported employment during the follow-up period (n=73) were compared to those who did not (n=233), using t-tests, chi-square tests, and logistic regressions.
RESULTS: Re-entry employment was significantly ($p < .05$) associated with more years of education, less time incarcerated, and a lower likelihood of past prescription opioid misuse or daily polydrug use. Follow-up data indicated that participants who were employed during the follow-up period had a lower likelihood of re-arrest, spent less time re-incarcerated, and were less likely to report drug use. Logistic regression analyses indicated the relationship between employment and recidivism was partially mediated by drug use during the follow-up period. CONCLUSION: The results of this study help fill a void in the drug abuse and employment literature by examining an understudied group of rural female drug-involved offenders, largely replicating findings in other drug-involved offender populations. Results from the mediation analysis suggest that employment interventions for this population should consider being delivered in conjunction with drug treatment for best outcomes. Study limitations include recruitment from a single rural region and self-report data.

Financial Support: This research is supported by NIDA grant R01DA033866.

First Name: Matt

Last Name: Webster

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Company Affiliation: University of Kentucky

Contact Title: Associate Professor

ID: 238
Improved frequency of ART initiation and use of harm reduction services among HIV-positive PWID in Ukraine.

Oleksandr Zeziulin, Ukrainian Institute on Public Health Policy

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: Aim. The key population implementation science project, Improving Treatment Engagement and Adherence for People Who Inject Drugs in Ukraine (PWID), aims to assess HIV treatment and prevention outcomes among PWID who receive standard HIV care services (SoC) compared with those who receive the Community Initiated Treatment Intervention (CITI), a peer-led case management program in 14 regions of Ukraine. Methods. Since January 2016 this prospective, quasi-experimental study involved HIV-positive PWID who never linked to HIV care or linked but was lost to follow-up during 6 months before study enrollment. Participants are seen at 6, 12, and 18-month follow-up. We analyzed data from 1,363 participants (628 CITI and 735 SoC) who had completed a 6-month follow-up interview as of September 2017. Results. Harm reduction services use was equally distributed in both groups at baseline (43% vs. 41%, p=0.989) and in 6 months significantly increased in the CITI group (75% vs. 45%, p < 0 .001). Participants in the CITI group were more likely to visit an AIDS clinic at least once during the last 6 months (93%) than in the SoC (63%, p < 0 .001). The proportion of participants who had started ART at 6 months was higher in the CITI group (48% vs. 26%, p< 0.001). Conclusion. PWID who receive CITI case management support reported more frequent use of harm reduction services and HIV treatment at the 6-month follow-up visit than participants receiving standard care suggesting the CITI program may be an effective tool to decrease risk behavior and increase use of ART among PWID.

Financial Support: None

First Name: Oleksandr

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Company Affiliation: Ukrainian Institute on Public Health Policy

ID: 239
Do persons with opioid use disorder and injection-related infections really need prolonged hospitalizations to complete intravenous antibiotic therapy?

Laura Fanucchi, University of Kentucky, College of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: Persons with opioid use disorder (OUD) hospitalized with severe, injection-related infections (e.g. endocarditis), often remain inpatient to complete prolonged intravenous (IV) antibiotics (6+ weeks) due to assumptions that, if outpatient, patients will inject illicit drugs into the IV catheter and will fail to complete prescribed antibiotic regimens. No evidence supports these assumptions, and unfortunately, the inpatient stay infrequently includes OUD pharmacotherapy. AIM: Determine if inpatients with OUD and severe injection-related infections can be safely discharged to complete antibiotics through a IV catheter in the context of comprehensive outpatient OUD treatment including buprenorphine. METHODS: Pilot proof-of-concept, randomized, parallel-group study enrolling hospitalized adults with OUD and severe injection-related infections. Participants are provided inpatient buprenorphine treatment with counseling and randomized (1:1) to either usual care [completing IV antibiotics inpatient] or to early discharge [completing IV antibiotics outpatient once medically stable]. Both groups receive 12-weeks of comprehensive OUD treatment with buprenorphine after discharge. RESULTS: Currently, 49 patients were screened, and 12 met eligibility criteria, provided informed consent, and were randomized; 6 to usual care and 6 to early discharge. All completed recommended IV antibiotics. During the 12-week outpatient phase, in the usual care group (n=5), 88% (28 of 33) of urine samples tested negative for illicit opioids, while in the early discharge group (n=6), 94% (35 of 36) tested negative. One participant is still inpatient. There was one death after antibiotic completion deemed unrelated to study procedures. CONCLUSIONS: These early results suggest patients with OUD and complex injection-related infections may be safely discharged to complete IV antibiotics via indwelling catheters if comprehensive OUD treatment with buprenorphine is started while inpatient and continued after discharge. Importantly, while prolonged inpatient care is common practice, viewed as protective but extremely costly, these data suggest that comprehensive outpatient care is feasible and equi-effective.

Financial Support: University of Kentucky College of Medicine and UK Center for Clinical and Translational Science Multidisciplinary Value Program. This publication was supported by the National Center for Research Resources and the National Center for Advancing Translational Sciences, National Institutes of Health, through Grant UL1TR001998, the College of Medicine, and Office of the Vice President for Research. The content is solely the responsibility of the authors and does not necessarily represent the official views of the NIH.

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ID: 240
Transcranial direct current stimulation in nicotine addiction

Ilse Verveer, Erasmus University Rotterdam

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Treatment

Abstract: Aims: A promising new treatment that may help smokers to quit is transcranial Direct Current Stimulation (tDCS). tDCS is a non-invasive electrical neurostimulation technique that has the ability to modulate action potentials. Recent addiction studies have shown that tDCS applied over the dorsolateral prefrontal cortex (DLPFC) can reduce craving in nicotine addiction. However, little is known about the effect of tDCS over the DLPFC on actual cigarette consumption or about the working mechanism behind this effect. Since the DLPFC is related to cognitive control functioning, we aimed to study the modulatory effect of craving and cognitive control on cigarette consumption after repetitive tDCS. Methods: The current study explored the effect of 3 x 2 bilateral tDCS sessions (2 mA) over the right DLPFC on cigarette consumption in 60 smokers. To study the working mechanism behind this effect, EEG measures of inhibitory control were taken during a smokers Go/NoGo task before and after the intervention week, and at three months follow-up. In addition, we used Ecological Momentary Assessments, which consisted of questionnaires provided by a mobile app, to collect daily measures of craving and cigarette consumption for three months. Results: Preliminary results (n = 55) have shown a trend of reduced number of cigarettes smoked a day after repetitive tDCS (b=-.19, p = .077). Once the data collection is completed (beginning of 2018), multilevel analysis will be performed in Mplus to study the modulatory effect of craving and cognitive control on cigarette consumption over time after tDCS. The results of this analysis will be presented at the conference. Conclusion: Repetitive tDCS may decrease cigarette consumption for at least two weeks up to three months. It is expected that this decrease is modulated by a change in craving, and electrophysiological and behavioural measures of cognitive control functioning.

Financial Support: Erasmus University Rotterdam

First Name: Ilse

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ID: 241
Self-perceived impaired control in alcohol use: An ecological momentary assessment study

Danielle Remmerswaal, Erasmus University Rotterdam

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Alcohol

Topic: Mechanisms of Action

Abstract: Aim: While retrospective and laboratory studies have supported impaired control as a crucial factor in understanding problem drinking, little is known about this relationship in the real world. However, control over alcohol is thought to be a dynamic construct that fluctuates over time influenced by factors such as exposure to alcohol related cues eliciting craving. Consequently, this makes it important to study these variables as it occurs over time in the contexts in which it normally occurs. The present study uses EMA methods to examine the associations between perceived control over alcohol use, craving, and daily alcohol consumption in the natural environment of regular drinkers. It was hypothesized that impaired control and craving are prospectively associated with the likelihood that people will drink. In addition, we expected that increased craving and lower control are associated. Methods: Participants were 175 regular drinkers (72 men, 103 women) between ages 18 and 66 (M = 31.1, SD = 13.91). Participants downloaded an application on their smartphones and responded to random prompts for seven days to measure perceived control and subjective craving. In addition, participants were instructed to initiate an assessment when they started drinking alcohol. Results: First of all, results from multilevel regression analyses demonstrated that perceived control over alcohol use and craving were negatively associated ($p < .001$). Most importantly, results showed that craving was higher ($\beta = 12.13$, $p < .001$) and control was lower ($\beta = -3.55$, $p = .0020$ on assessments that were proximate (within two hours) of a self-initiated alcohol assessment. Conclusion: This study found evidence that impaired control and increased craving prospectively predict alcohol consumption in everyday life. These findings suggest that variability in impaired control is involved in starting drinking alcohol.

Financial Support: Erasmus University Rotterdam

First Name: Danielle

Last Name: Remmerswaal

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Erasmus University Rotterdam

ID: 242
Reported substance use and HIV testing among emergency department patients who complete a tablet-based intervention

Ian Aronson, Digital Health Empowerment / NDRI

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: AIDS/Immune

Abstract: AIM Despite federal guidelines calling for routine HIV testing in healthcare facilities, fewer than 25 percent of eligible emergency department (ED) patients actually test. Many are not offered testing, and others decline tests offered by staff. Our team developed and piloted a tablet-based intervention designed to increase HIV test rates among patients who declined tests at triage. The intervention displayed a short video on the importance of HIV testing and then offered participants a test. The intervention also contained an automated risk screening, separately assessing substance use and sexual risk. Following the pilot, we sought to examine potential relationships between reported substance use and/or sexual risk and testing for HIV post-intervention. Hypothesis: Participants who reported increased risk would be more likely to test. METHODS Patients in a high volume New York City ED (n=300; 64% female; 61% African American) who declined HIV testing were recruited to complete a brief (< 1 2 minute) intervention. Custom software asked participants to report substance use in the past 3 months and sexual risk in the past 12 months. RESULTS 91 participants (30%) tested for HIV post-intervention. About half of all participants (49%; n = 148) reported either problem substance use (e.g. trying and failing to quit) or sexual risk behaviors (i.e. sex with multiple partners). These participants were significantly more likely to test post-intervention (36 %, n=53 of those who reported risk tested compared to 25%, n=38 who did not report risk; OR = 1.67; p = 0.04). CONCLUSION Increasing HIV test rates among ED patients who initially decline yet report risky behavior may help address undiagnosed HIV in hard to reach populations. Additional research is warranted to examine how intervention content can be optimized to further increase test rates among those most at risk.

Financial Support: NIH/NIDA grant R34 DA037129 NIH/NIDA grant P30 DA029926 NIH/NIDA grant P30 DA011041

First Name: Ian

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Company Affiliation: Digital Health Empowerment / NDRI

ID: 243
Using support vector machine (SVM) to predict heroin addiction

Shaw-Ji Chen, Mackay Memorial Hospital, Taitung Branch

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Genetics

Abstract: Heroin abuse and addiction is a serious chronic disorder with a high relapse rate. It is a complex disorder resulting from the interaction between genetic predisposition and environmental factors. Identifying the individuals with high genetic susceptibility might open an opportunity to prevent heroin addiction before its occurrence. The study aimed to test the plausibility of predicting the diagnosis of heroin addiction using a set of expressed genes as signature. We measured the mRNA level of 13 genes of lymphobalstoid cell lines in 124 male heroin addicts and 124 male control subjects using real-time quantitative PCR. Logistic regression (LR) and support vector machine algorithm (SVM) were used to establish predicting models. We found that LR and SVM models could predict the diagnosis of heroin addiction using the expression data of 4 genes (ENO2, PRKCB, JUN and CEBPB). The accuracy of both models was more than 80%. Our data suggest it is plausible to utilize the gene expression from peripheral blood cells as a signature to predict the diagnosis of heroin addiction.

Financial Support: NIL

First Name: Shaw-Ji

Last Name: Chen

Degrees: MA MD Ph.D etc:: MD.Ph.D

Company Affiliation: Mackay Memorial Hospital, Taitung Branch

ID: 244
Prenatal cocaine exposure and cortisol reactivity in early adolescence

Rina Eiden, State University of New York at Buffalo

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Neurobiology

Abstract: AIM Chronic prenatal cocaine exposure (PCE), often occurring in the context of polysubstance abuse, constitutes a significant intrauterine stressor with the potential for life long alterations in children's stress response mechanisms. However, the literature on PCE effects on children's stress reactivity is small, with only two studies on adolescents, and none have examined potential dose-response associations. We examined the association between level of PCE exposure (light, heavy, none) on cortisol reactivity in early adolescence (EA). METHODS Data were collected as part of an ongoing study of children recruited at birth and assessed across early and middle childhood and in EA (12-14 years). PCE was ascertained on the basis of self-reports, urine toxicology, and maternal hair assays. Cortisol data were available for the first 60 children (25 controls, 15 light cocaine, 20 heavy cocaine) assessed in EA collected at 4 time points, before and after the Trier Social Stress Test. Heavy PCE was defined as average cocaine use of >2 days/week during pregnancy and/or having high (top quartile) cocaine metabolites in hair. RESULTS Results from repeated measures ANCOVA with other substance use and foster care status across childhood as covariates indicated a significant interaction of time by cocaine exposure on cortisol reactivity in EA. Adolescents in the control group had a normative cortisol response to stress with a significant increases 20 minutes after exposure to stressor. Adolescents with chronic heavy exposure had a flat or blunted cortisol response, a pattern associated with chronic stress and increased risk for physical and behavioral disorders. Adolescents in the light exposure group had a significant increase in cortisol faster than the control group with the highest levels about 20 minutes after the relaxation procedure. CONCLUSION Results support two previous studies reporting blunted cortisol response among PCE adolescents, but highlight the importance of considering level of exposure.

Financial Support: National Institute on Drug Abuse R01DA041231

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Company Affiliation: State University of New York at Buffalo

ID: 245
A culturally adapted parenting intervention for Latino/a immigrant families: Integrating culture and evidence-based knowledge

Jose Parra-Cardona, University of Texas at Austin

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Prevention

Abstract: Aim: The objective of this presentation is to report the perceived relevance of a culturally adapted version of the efficacious parenting intervention known as GenerationPMTO®. This feasibility study was embedded within a randomized controlled trial aimed at empirically testing the initial efficacy of the intervention. Efficacy analyses are ongoing as data collection of participants allocated to the control condition has just been completed. In this presentation, we report feasibility findings according to: (a) quantitative reports of perceived satisfaction provided by parents exposed to the intervention condition, (b) intervention retention data, and (c) qualitative satisfaction reports provided by 39 Latino/a parents. Methods: Participating Latino/a families had a target youth between 12 and 14 years of age. Descriptive analyses were conducted to analyze levels of attendance and satisfaction with the intervention. A thematic analysis approach was used to analyze qualitative data gathered through focus groups. We hypothesized high rates of retention of parents attending the intervention, as well as high satisfaction with the adapted intervention. Results: Despite the majority of participants reporting considerable economic challenges, high retention rates were achieved with parents allocated to the intervention condition. Specifically, 35 out of 37 mothers successfully completed the parenting program (94.5%). Nine of 12 fathers completed the intervention (75%). On a 1-5 satisfaction scale, satisfaction ratings across all parenting groups averaged 4.71 (SD = 0.74). Qualitative findings indicate high participant satisfaction with the cultural and parenting components of the intervention. Prevention of drug use was identified as a salient theme by parents. Conclusion: Findings indicate that culturally adapted parenting interventions hold promise as an alternative to prevent adolescent drug use in low-income Latino/a immigrant populations, particularly as it refers to the protective role associated with promoting effective parenting practices.

Financial Support: NIDA K01DA036747 (JRPC); K05DA015799 (JCA).

First Name: Jose

Last Name: Parra-Cardona

Degrees: MA MD Ph.D etc:: Ph,D.

Company Affiliation: University of Texas at Austin

ID: 246
Art adherence among opiate addicted patients treated with naltrexone: Oral and implantable

Tatiana Yaroslavtseva, First Pavlov State Medical University of St. Petersburg

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: Aim: Opiate dependence causes poor adherence to antiretroviral medications (ART) but addiction treatment improves it. Electronic monitors are the most accurate measures of adherence but expensive. Here, we compared ART adherence in patients stabilized on oral or implantable naltrexone using the self-reported ART adherence index (AAI) with accuracy checked by the Medication Event Monitoring System (MEMS). Methods: 200 recently detoxified HIV+ opiate addicted patients starting ART were randomly assigned 1:1 to 12 months of a naltrexone implant that blocks opioid effects for 3 months and oral placebo (NI), or daily oral naltrexone and placebo implant (ON). Primary outcome was undetectable HIV viral load (HVL; < 4 00 copies/ml) at week 48. We compared the AAI with MEMS for individuals with HVL and adherence data. The correlation between AAI and MEMS measured adherence was assessed by Pearson Coefficient; the correlation between MEMS and AAI with change in HVL from baseline was evaluated by Spearman Coefficient with log10 transformed HVL. Results: 188 people were included in the analyses. No significant differences of ART adherence were found between ON and NI groups measured by AAI (91.4±17.4 vs 93.8±13.9, p=0.67) or MEMS, (70.2%±29.0% vs. 66.6%±28.5%, p=0.51). Adherence to ART was better in those who completed naltrexone treatment than those who dropped out whether measured by AAI (AAI: 92.4±15.17 vs. 89.32±21.33, p < 0 .001) or MEMS (73.3%±22.0% vs. 65.10%±32.10%, p=0.038), regardless of group assignment. AAI correlated with MEMS (r = 0.78, p=0.0001) and both correlated with HVL change (AAI, r = 0.306, p=0.0002; MEMS, r = 0.305, p=.0002). Conclusion: ART adherence did not differ between opioid addicted patients assigned to ON or NI as measured by either AAI or MEMS. However, patients who completed naltrexone treatment had better ART adherence than those who dropped out by both measures. AAI can provide useful data in assessing ART adherence in opioid addicted patients in addiction care.

Financial Support: First Pavlov State Medical University of St Petersburg

First Name: Tatiana

Last Name: Yaroslavtseva

Degrees: MA MD Ph.D etc:: MD

Company Affiliation: First Pavlov State Medical University of St. Petersburg

ID: 247
Remembering addictive behaviours: Effect of cocaine-associated stimuli on memory formation

Francesco Leri, University of Guelph

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Stimulants

Topic: Behavior

Abstract: AIM: Cocaine enhances memory formation and thus facilitates acquisition of behaviors leading to its consumption. These behaviors, however, are also activated and maintained by environmental stimuli that have been associated with the effects of the drug. Hence, it is likely that cocaine-associated stimuli, similarly to cocaine itself, can enhance memory formation. METHODS: To test this hypothesis, four studies were conducted in laboratory rats (males, Sprague-Dawley). In the first, animals received injections of various doses of cocaine (0, 5, 10 or 20 mg/kg; IP) in a distinct context to identify a treatment regimen that would generate robust conditioning, revealed by conditioned locomotion. Study 2 established a within-subject discriminative conditioning protocol to generate a cocaine (20 mg/kg) context and vehicle-associated context. The third study compared the effect of exposing rats to cocaine (0, 5, 10 or 20 mg/kg) or to the cocaine- and vehicle-associated contexts immediately after training on an object recognition memory task. RESULTS: As anticipated, post-training administration of cocaine (10 and 20 mg/kg) enhanced the discrimination ratio on a subsequent test of recognition, suggesting a memory enhancing action. Interestingly, post-training exposure to the cocaine-associated context, but not to the vehicle-paired context, produced a similar effect both in terms of direction and magnitude. Finally, the final study revealed that post-training exposure to cocaine, or to the cocaine-associated context, had no effect if it delayed by 6 hours following object recognition training. CONCLUSION: Overall, these data in rats indicate that post-training exposure to a cocaine-associated context can significantly affect memory formation. This represents the first demonstration of a psychological function of drug-associated stimuli that is likely to impact the development and maintenance of addictive behaviors.

Financial Support: The Natural Sciences and Engineering Research Council of Canada (NSERC)

First Name: Francesco

Last Name: Leri

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: University of Guelph

Contact Title: Assistant Professor

ID: 248
Stimulating future value: Episodic future thinking decreases delay discounting in recreational and chronic cocaine users

Sarah Snider, Addiction Recovery Research Center

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Stimulants

Topic: Behavior

Abstract: Aim: Episodic Future Thinking (EFT) is the process of vividly projecting oneself into the future. Previous research has demonstrated that EFT can increase valuation of future rewards, as measured by a delay discounting task, in individuals who smoke, drink alcohol, and overeat. The present study was aimed to assess EFT's effect on delay discounting in individuals who recreationally use cocaine (REC) and who demonstrate cocaine substance use disorder (i.e., COC). Methods: REC (n= 8) and COC (n= 12) participants were allocated to either an active or control EFT group. All participants completed two baseline delay discounting tasks, 1) money now-money later and 2) cocaine now-money later. Participants then completed a staff-administered interview wherein they were asked to generate and vividly describe either positive future events (active EFT) or positive events from the previous day (control EFT). Finally, participants completed the delay discounting tasks again while their generated events were presented on the screen. Results: As expected, REC users exhibited significantly lower baseline delay discounting rates for both task types, compared to the COC group ($p < 0\ .05$). When cocaine user types were collapsed, participants in the active EFT group demonstrated higher indifference points at the later delays for both the monetary ($p < 0\ .05$) and cocaine ($p < 0\ .05$) task types, compared to their own baseline; whereas the control group showed no change. Moreover, when separated, the COC group demonstrated significantly increased indifference points at longer delays in the cocaine-money task following active EFT, compared to baseline; whereas the respective control groups did not. Conclusion: Together, these results not only demonstrate that episodic future thinking may be effective in increasing valuation of future rewards in cocaine users, but that EFT may be especially effective at decreasing valuation of immediately available cocaine in individuals who need it the most.

Financial Support: R01DA030241 and Virginia Tech Carilion Research Institute

First Name: Sarah

Last Name: Snider

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Addiction Recovery Research Center

ID: 249
The use of ketamine in opioid withdrawal: Case studies

Jérôme Bachellier, CHRU de Tours, Clinique Psychiatrique Universitaire

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: AIM Current treatment of opioid use disorder relies on substitution treatment. However, even though patients often ask for complete withdrawal they remain apprehensive about it. Several studies have demonstrated that ketamine acts on opioid receptors. Currently, ketamine is used for patients with chronic pain who have developed a chronic hyper sensibility after opioid-based treatments. Based on data from literature, we hypothesized that ketamine could be helpful for opioid withdrawal in a hospital setting. The main objectives of this experimental protocol were to reduce the painful symptomatology linked to withdrawal and to reduce the painful symptomatology linked to withdrawal and to reduce the craving subtended by the anticipation of pain. Methods : Basing our approach on the work from medical teams that work on chronic pain, four of our patients (2 men and 2 women) who wanted complete withdrawal, were asked to participate in the study. This involved adding ketamine slow perfusion to the usual protocol. Results : For all patients included in the protocol, ketamine facilitated acceptance of withdrawal, particularly by reducing the symptoms of pain. Three out of the four patients reported that the cravings disappeared, after treatment. Discussion : These case studies were an initial assessment of the feasibility of a more complete research, which would involve more participants, in order to determine whether ketamine could significantly improve the physical and psychological comfort of patients in opioid withdrawal. Furthermore, one could expect that ketamine would restore imbalances in the pain circuits and thus potentially the patient's quality of life post-withdrawal. This case analysis also showed the positive implication of medical team and patients in the application of new therapeutic strategies.

Financial Support: no

First Name: Jérôme

Last Name: Bachellier

Degrees: MA MD Ph.D etc:: MD

Company Affiliation: CHRU de Tours, Clinique Psychiatrique Universitaire

ID: 250
Risk factors associated with overdose during follow-up in treatment-seeking youth with substance use disorders

Amy Yule, MGH

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Other

Abstract: AIM: To identify the incidence of non-fatal and fatal overdose (OD) among youth engaged in outpatient substance use disorder (SUD) treatment, and to identify substance use and psychiatric characteristics associated with OD. METHODS: Systematic review of the medical records of patients ages 16 to 26 years of age who had a comprehensive semi-structured initial evaluation and engaged in care or had a fatal OD. Unintentional OD was defined as substance use without the intention of self-harm that was associated with significant impairment in level of consciousness. Intentional OD was defined as ingestion of a substance that was reported as a suicide attempt. Engagement in care was defined as two follow-up appointments within 30 days of the initial evaluation. T-tests, Pearson's chi-square, and Fisher's exact tests were performed to evaluate for substance use and mental health characteristics associated with OD. RESULTS: In all, 127 (64%) of 200 patients seen for an intake assessment engaged in care and 10 patients (8%) had a non-fatal OD within the subsequent 2.5 years. Ten independently collected patients had a fatal OD. There were no differences in substance use or mental health characteristics between the non-fatal and fatal OD groups (all $p \geq 0.05$) and the groups were therefore combined for analysis. Compared to those without OD those with an OD were more likely to have a lifetime history of opioid use disorder, cocaine use disorder, intravenous drug use, inpatient detoxification, mood disorder NOS, self-injurious behavior, or during follow-up to receive medication assisted treatment, or SUD treatment in a higher level of care (all $p < 0$ .05). CONCLUSIONS: Treatment-seeking youth with a SUD who had an OD during follow-up were more likely to have characteristics associated with a more severe SUD compared to patients with no history of OD.

Financial Support: MGH Louis V. Gerstner III Research Scholar Award, 5K12DA000357-17

First Name: Amy

Last Name: Yule

Degrees: MA MD Ph.D etc:: MD

Company Affiliation: MGH

ID: 251
Pathological changes in the corticostriatal pathway induced by experimental traumatic brain injury and subsequent rewarding effects of cocaine in rodents

Lee Anne Cannella, Lewis Katz School of Medicine at Temple University

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Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Stimulants

Topic: Behavior

Abstract: Aims: Clinical studies identify traumatic brain injury (TBI) as a risk factor for the development of cocaine substance use disorder (SUD). Our previous pre-clinical studies in mice demonstrated moderate TBI during adolescence increased susceptibility to the rewarding effects of a subthreshold dose of cocaine during adulthood. Here we investigated how adolescent TBI affects rates of acquisition or motivation to self-administer a low dose of cocaine in rats. Further, TBI pathology reveals disrupted blood-brain barrier (BBB) status in the reward pathway. The implication of BBB changes post TBI, a hallmark of neuroinflammation, may explain how the rewarding effects of cocaine shift as a consequence of TBI. Methods: Moderate TBI was induced using a controlled cortical impactor in male adolescent (P42) Sprague Dawley rats. Two weeks post injury, rats were trained to self-administer cocaine (0.1 or -0.5 mg/kg/inf) in daily 2-hr sessions under a fixed ratio 1 for 7 days. On day 8, rats were switched to a progressive ratio design in 4-hr sessions for another 7 days. Histology and gene expression assays were used for neuroinflammation and BBB integrity indices. Results: At the high dose (0.5mg/kg/inf), moderate TBI during adolescence decreased cocaine self-administration and did not affect breakpoints. However, at the low dose (0.1mg/kg/inf), TBI increased cocaine self-administration. Additionally, we detected increased expression of immune response-associated genes and disrupted tight junction protein expression in vessels from the prefrontal cortex and nucleus accumbens of TBI rodents. Conclusions: Our studies suggest that TBI during adolescence may enhance the abuse liability of cocaine in adulthood and vulnerability to the rewarding effects of cocaine could be higher as a result of brain injury. Moreover, key pathological findings such as BBB changes in areas of the reward pathway support the notion that neuroinflammation may contribute to how rewarding effects of cocaine post-TBI are affected.

Financial Support: T32 DA007237 (LAC), NIH/NINDS R01 NS086570-01 (SHR)

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Degrees: MA MD Ph.D etc:: MS

Company Affiliation: Lewis Katz School of Medicine at Temple University

ID: 252
The effectiveness of trauma-focused cognitive behavioral therapy in reducing substance use among orphans and vulnerable children in Zambia

Jeremy Kane, Johns Hopkins Bloomberg School of Public Health

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Treatment

Abstract: Aim HIV remains the leading cause of death among adolescents in sub-Saharan Africa (SSA). Orphans and vulnerable children (OVC) are considered a high-risk group for HIV due, in part, to the high rate at which they experience traumatic events. Experienced trauma can lead to stress-related problems, such as substance use, which in turn can lead to poor HIV outcomes (infection, transmission, retention). There is a paucity of research testing evidence-based treatments for substance use in SSA among HIV-affected adolescent populations. We assessed the effectiveness of trauma-focused cognitive behavioral therapy (TF-CBT) delivered by local, lay counselors in reducing substance use among OVC in Zambia. Methods We tested the comparative effectiveness in reducing substance use between TF-CBT and psychosocial counseling (PC), a locally-developed psychoeducation-based therapy. 610 OVC (ages 13-17) were randomized to receive weekly TF-CBT or PC sessions. Substance use was measured with the Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST) administered via audio-computer assisted self-interviewing at baseline, end of treatment, and 6-months post-treatment. A binary indicator of past 3-month use was derived inclusive of: alcohol, inhalants, marijuana, cocaine, sedatives, hallucinogens, and methamphetamines. Results Baseline prevalence of recent substance use was 35.7% among OVC randomized to TF-CBT. Reported use reduced to 12.7% at the post-treatment assessment (RR: 0.36, p

Financial Support: Financial Support: The study was supported by the National Institutes of Health (R01HD070720).

First Name: Jeremy

Last Name: Kane

Degrees: MA MD Ph.D etc:: PhD, MPH

Company Affiliation: Johns Hopkins Bloomberg School of Public Health

ID: 253
A re-evaluation of the KMSK scales, rapid dimensional measures of exposure to specific drugs

Eduardo Butelman, The Rockefeller University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Other

Abstract: AIM: The KMSK scales (Kellogg et al., 2003: Drug Alc Depend 69:137-150) provide rapid ordinal scores for maximal lifetime exposure to specific drugs, and can be used as a dimensional measure. This study is a re-evaluation of the KMSK scales for cannabis, alcohol, cocaine and heroin, in a relatively large multi-ethnic sample, with a comparison of gender-specific profiles. METHODS: The protocol was approved by the Rockefeller University Hospital IRB. Participants were recruited from several drug treatment programs, and from the greater New York City community. This was a case-control study with n=1,133 sequentially ascertained adult participants. Instruments were the SCID-I interview (DSM-IV criteria), and KMSK scales. RESULTS: Participants included 852 cases (297 female) with DSM-IV abuse or dependence diagnoses, and 281 controls (154 female) without such diagnoses. Cases had greater median KMSK scores than controls for each drug (Mann-Whitney tests; p 97% for both men and women, for cocaine and heroin, >92% for alcohol, and >81% for cannabis. Optimal KMSK “cutpoint” scores were identical for men and women for cocaine and heroin, but were lower in women than in men, for cannabis and alcohol. CONCLUSIONS: This study confirms the KMSK’s capacity to perform rigorous dimensional analyses for cocaine and heroin exposure, in a larger cohort than previously reported. We report for the first time that optimal KMSK cutpoint scores are lower for females than for males, for alcohol and cannabis. This may relate to gender-related differences in the amount of exposure to these drugs that results in clinically diagnosable features.

Financial Support: Dr. Miriam and Sheldon G. Adelson Medical Research Foundation, and an NIH-CTSA grant (1UL1TR001866; Dr. Barry Coller, PI).

First Name: Eduardo

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ID: 254
Driving under the influence of cannabis among medical cannabis patients

Erin Bonar, University of Michigan

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Other

Abstract: Aims: Driving after consuming cannabis has significant public health consequences (e.g., motor vehicle crashes). Medical cannabis is now available in over half of U.S. states. In some states, there has been an increase in cannabinoids detected among drivers in fatal crashes (Masten & Guenzburger, 2014). To inform policy and interventions, the present study examined the prevalence and correlates of driving after cannabis use (driving while high=DWH) among medical cannabis patients. Methods: We used cross-sectional survey data from N=801 participants who were seeking a new or renewal medical cannabis certification (for moderate/severe pain) from medical cannabis certification centers in Michigan. At baseline, participants completed survey questions related to frequency of cannabis use and driving behaviors in the past 6-months with items assessing driving within 2 hours of cannabis use, driving while "a little high" on cannabis, and driving while "very high" on cannabis. We examined the associations between demographics, binge drinking, cannabis-related variables, and DWH behaviors. Results: Participants were 52% male and 13% minority (meanage=45.8 years); 41% reported partial or full-time employment. The past 6-month prevalence of DWH was as follows: 56.5% drove within 2 hours of use, 50.6% drove while a little high, and 21.1% drove while very high. Results from bivariate analysis showed that correlates associated with reporting each DWH behavior included younger age, binge drinking, prior medical cannabis certification, positive cannabis expectancies, and higher levels of cannabis consumption. Conclusions: Given the prevalence of DWH among medical cannabis patients, psychoeducation and interventions are needed for this population to prevent negative consequences of DWH. Recommendations to avoid driving within several hours after consumption (e.g., Neavyn et al., 2014) require further validation, given lack of consensus in the literature, to provide clear public health messaging. That binge drinking is associated with DWH poses concerns regarding driving risks associated with co-ingestion

Financial Support: NIDA# 036008 & 033397

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Company Affiliation: University of Michigan

ID: 255
High school adolescents use several types of e-cigarette devices

Asti Jackson, Yale University School of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Adolescent

Abstract: E-cigarette use is prevalent among adolescents. E-cigarette designs have advanced rapidly from first generation “cig-a-likes” to more complex, modifiable devices. Adolescents primarily use later generation devices. AIM: In the current study, we evaluated adolescents’ use of several types of e-cigarette devices and whether each device type is used with nicotine. METHODS: We surveyed four high schools in Connecticut (n=2945) during Spring 2017. Youth were asked if they ever tried e-cigarettes. We also presented youth with pictures and descriptions of different devices and assessed whether they had ever tried each device, frequency of use (number of days in past 30), and nicotine use with each device. RESULTS: Youth who reported ever use of e-cigarettes had used different types of devices: disposable cig-a-like or e-hookah (shaped like a cigarette; 25.9 %), hookah pen/vape pen/EGO (e-liquid tank and larger, rechargeable batteries; 61.7%), JUUL e-cigarette (USB charger and pre-filled e-liquid cartridges; 65.4%), and mods/advanced personal vaporizers (customizable battery and tank; 72.4%). Rates of past-30-day use of these devices were as follows: disposable cig-a-like or e-hookah (6.3%, M=14.1 [SD=12.4] days); hookah pen/vape pen/EGO, (16.2%, M=9.0[SD=10.2] days); JUUL e-cigarette (40.4%, M=11.7[SD=10.9] days); and mods/advanced personal vaporizers (28.8%, M=11.0[SD=11.2] days. Among those who reported using each device, many used them with nicotine: disposable cig-a-like or e-hookah (52.4%), hookah pen/vape pen/EGO (48.8%), JUUL e-cigarette (82.1%), and mods/advanced personal vaporizers (57.6%). Among youth who reported ever use of at least one device, 27.7% reported ever use of one device, 34.7% reported ever use of two devices, 26.1% reported ever use of three devices, and 11.5% reported ever use of 4 devices. CONCLUSION: These findings suggest that adolescents use different types of e-cigarette devices, in some cases multiple devices, and with nicotine. Further research should investigate potential differences in nicotine delivery and health risks associated with each device.

Financial Support: Supported by Yale TCORS (P50DA036151)

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ID: 256
Altered reward feedback processing in prenatally cocaine exposed adolescents: Evidence from theta and alpha oscillations

Kristen Morie, Yale University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Stimulants

Topic: Adolescent

Abstract: Aim: Individuals with pre-natal cocaine exposure (PCE) show impulsive behaviors, such as increased initiation of substance use, that may be related to impaired reward feedback processing. Electroencephalography (EEG) is a technique well-suited to investigating brain activity during reward feedback tasks, with excellent temporal resolution for distinguishing ongoing neural processes. Despite this, no EEG investigations of reward feedback processing in PCE adolescents yet exist. Methods: 49 PCE adolescents and 34 adolescents with no such exposure (non-drug-exposed (NDE)) were recruited for the study. Participants performed a reward feedback task in which they could win money while EEG data was recorded. Outcomes of the task consisted of a reward condition (win) or a no-reward condition (draw). Spectral power of oscillations in the theta (4-7hz) and alpha (8-12) hz frequencies were examined in response to the two conditions, using 2X2 (group x condition) ANOVAs. All analyses treated drug use initiation, age, and gender as covariates. Results: PCE adolescents reported increased initiation of alcohol and marijuana use, and both groups reported initiation of tobacco use at similar frequencies. PCE adolescents demonstrated less alpha power during the draw condition than did NDE individuals. PCE adolescents also demonstrated less theta power overall and less theta power during the win condition than did NDE individuals. Conclusions: Reduced theta power in PCE adolescents may reflect impaired executive function, as theta frequency oscillations are thought to arise from medial-frontal generators. Reductions in theta power during a win may imply reductions in reward sensitivity or in the ability to use information about a success to keep track of ongoing winnings. The alpha power reductions in PCE adolescents during a draw condition may signify increased arousal because of not winning, possibly interpreted as frustration. It is clear from the data that PCE adolescents process reward feedback differently compared to their NDE counterparts.

Financial Support: K01 DA034125 (MJC) 1K01DA042937, T32 MH018268, P50 DA09241, UL1-DE19586, RL1 AA017539, R01 DA006025, R01 DA017863, K05 DA020091, T32 DA007238, R21 DA030665, MH018268-31

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ID: 257
The semi-synthetic kappa-agonist 16-Br-salvinorin A decreases the locomotor stimulant effects of cocaine in mice, without causing overt locomotor effects on its own

Eduardo Butelman, The Rockefeller University

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Stimulants

Topic: Mechanisms of Action

Abstract: AIM: Kappa-opioid receptor (KOP-r) agonists are known to block acute effects of cocaine. However, standard KOP-r agonists, including salvinorin A (the main active component of the plant Salvia divinorum), also typically cause sedative-like and anhedonic effects, which limit their potential progression to clinical studies. The salvinorin A analog, 16-Br-salvinorin A was able to block reinstatement of cocaine-reinforced responding in rats, with a limited burden of the aforementioned undesirable effects (Riley et al., 2014; J. Med. Chem. 57:10464-10475). METHODS: The effects of 16-Br-salvinorin A (i.p.; typically n=8) were studied in adult male C57BL/6J mice alone, and in combination with cocaine (i.p.). RESULTS: 16-Br-salvinorin A (0.1-1 mg/kg) did not have effects on locomotor activity in open field assays. In contrast, the parent compound, salvinorin A (0.32-1 mg/kg) caused a robust dose-dependent decrease in locomotor activity. 16-Br-salvinorin A (1 mg/kg, but not 0.1 mg/kg) was able to decrease the locomotor-stimulating effects of cocaine (15 mg/kg), when given as a 30 min, but not as a 3 hour pretreatment. CONCLUSIONS: The semi-synthetic salvinorin A analog, 16-Br-salvinorin A, was able to dose-dependently decrease acute cocaine-induced locomotor stimulation, and had a duration of action of less than 3 hours. Importantly, 16-Br-salvinorin A caused this effect at a dose that did not result in overt locomotor effects in adult male mice, on its own.

Financial Support: NIH-National Institute on Drug Abuse grant (PI: Dr. Prisinzano), and the Dr. Miriam and Sheldon G. Adelson Medical Research Foundation.

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ID: 258
Incisional injury and its recovery modulates morphine's rewarding properties

Chinwe Nwaneshiudu, Stanford University School of Medicine

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Opiates/Opioids

Topic: Behavior

Abstract: Aim: Continued use of prescribed opioids long after trauma or surgery has been shown to deter post-operative functional recovery in patients. In addition, a number of these patients become addicted to prescribed opioids incurring its significant consequences. The purpose of this study was to determine whether the presence of incisional injury or a history of injury affected subsequent morphine's rewarding properties using a conditioned place preference paradigm. Methods: Adult C57BL/6 male mice were divided into cohort groups that were either conditioned with morphine (5mg/kg, s.c.) 24hrs after hind-paw incisional injury or conditioned after recovery from incisional injury. After conditioning and testing for conditioned place preference, animals underwent extinction and morphine primed reinstatement. In a separate parallel study, after conditioning and after extinction, the medial prefrontal cortex and nucleus accumbens were extracted and analyzed for levels of dynorphin mRNA expression. Results: Animals that were conditioned 24hrs after incisional injury showed an enhanced response to morphine's reward but blunted response to morphine primed reinstatement. Molecular analyses showed that incision and morphine conditioning alone caused modest changes in prodynorphin expression in the medial prefrontal cortex and nucleus accumbens. However, with both incisional injury and morphine exposure the changes in prodynorphin levels were additive. In addition, animals that were fully recovered from incisional injury showed enhanced response to morphine primed conditioned reinstatement. The rate of extinction of place preference was not affected with incisional injury. Conclusions: These results demonstrate interactions between incisional injury, morphine reward and relapse to morphine reward possibly involving modulation of kappa opioid receptor signaling in the corticolimbic pathway.

Financial Support: Financial Support: NIDA T32 DA035165; I01 BX000881 06

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ID: 259
Injectors v. non-injectors: Baseline sample differences from a study of vivitrol treatment for youth with opioid use disorder

Shannon Mitchell, Friends Research Institute

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Adolescent

Abstract: Aim To compare baseline differences among study participants who have already begun injecting opioids versus those who have not. Methods Participants included adolescents ages 15 through 21 who were diagnosed with opioid use disorder and recruited into a clinical trial upon entering an inpatient treatment facility in Baltimore, Maryland. At baseline, participants were asked comprehensive questions regarding their substance use history, including a detailed accounting of substance use and money spent on substances during the 90 days prior to treatment entry using the timeline follow back assessment. Group differences were examined with chi-2 tests of association and independent samples t tests. Results The injectors v. non-injectors sample (ns=179 and 106, respectively): was slightly older (mean= 19.5 v. 19 years; p.01 and .03, respectively); and were more likely to have had prior methadone treatment (p
Financial Support: NIDA 5R01DA033391-05

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Company Affiliation: Friends Research Institute

ID: 260
“A lethal dose in every batch”: New Hampshire opioid consumers’ behavior in seeking fentanyl and drugs known to cause overdose

Andrea Meier, Geisel School of Medicine at Dartmouth

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Behavior

Abstract: Aims: New Hampshire (NH) has the highest rate of fentanyl-related overdose deaths per capita in the United States. Illicit fentanyl use has doubled in the past two years, with an increase of 1600% in the past five years. There is a gap in understanding whether opioid consumers actively seek or are accidentally using fentanyl. This rapid epidemiological study investigated opioid consumers’ drug-using practices and perspectives to inform policy and treatment options in tackling the fentanyl overdose crisis in NH. Methods: Seventy-six active or recent opioid consumers from six counties in NH were recruited via advertisements, flyers and word-of-mouth. They completed a brief demographic survey and qualitative semi-structured interview. Interviews focused on drug-using practices and perspectives, including fentanyl and drug-seeking behaviors. Interviews were transcribed and analyzed using content analysis. Results: Eighty-four percent of interviewees reported using fentanyl, knowingly or accidentally, in their lifetime and 70% reported at least one lifetime overdose from any substance. Eighty-four percent of participants interviewed attributed the overdose crisis in NH to consumers’ use of fentanyl, yet 25% also reported actively seeking fentanyl despite the known risk of overdose. The other 75% were resigned to using heroin mixed with fentanyl because of the lack of alternatives. Additionally, 42% actively sought a batch of drugs that had recently caused an overdose, presuming it to be potent enough to produce an exceptional high but not die of an overdose. Conclusions: Despite consensus that fentanyl is the primary cause of overdoses in NH, opioid consumers continue to seek fentanyl, drugs that are likely mixed with fentanyl, and batches of drugs that have caused an overdose. Policy targeting innovative prevention, harm reduction and treatment efforts are needed to more effectively address the fentanyl overdose crisis in New Hampshire.

Financial Support: Financial Support: NIDA U01DA038360-Z0717001 (PI: Wish; Sub PI: Marsch)

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ID: 261
In vitro and in vivo pharmacology of "bath salts" constituent 4-chloro-N-ethylcathinone: radioligand binding and locomotor stimulant effects

William Fantegrossi, University of Arkansas for Medical Sciences

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Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Club/Designer Drugs

Topic: Mechanisms of Action

Abstract: 4-Chloro-N-ethylcathinone (4-CEC), a novel analogue of plant-derived cathinone present in some abused "bath salts" products, could interact with monoamine reuptake transporters to elicit psychostimulant-like abuse-related effects. Aim: Characterize the stimulant-like effects of 4-CEC in vitro and in vivo. Methods: 4-CEC and methamphetamine (METH) were tested for their capacity to displace [125I]RTI-55 and inhibit monoamine uptake in HEK cells expressing cDNA for human monoamine transporters. Open field locomotor activity was quantified in male CD1 mice (N=8 per dose) receiving injections of 4-CEC or METH. Results: 4-CEC displaced [125I]RTI-55 from dopamine (DA) transporters (Ki = 4.17 μM) slightly more potently than from serotonin (5-HT) and norepinephrine (NE) transporters (Kis=7.90 and 16.30 μM, respectively). 4-CEC inhibited 5-HT uptake (IC50 = 0.36 μM) slightly more potently than DA and NE uptake (IC50s=0.93 and 1.72 μM, respectively). In comparison, METH inhibited uptake of NE, DA and 5-HT with IC50 values of 0.03, 0.05 and 10.70 μM, respectively. In mice, 4-CEC and METH dose-dependently increased ambulatory activity, with maximum effective doses of 30 mg/kg (ED50 = 11.40 mg/kg) for 4-CEC and 1.8 mg/kg (ED50 = 1.20 mg/kg) for METH. At 100 mg/kg 4-CEC, mild stereotypy was observed, but administration of 178 mg/kg elicited lethal effects in all subjects. Conclusions: Like METH, 4-CEC induces psychostimulant-like effects in vivo, likely via inhibition of DA reuptake. Although less potent than METH, 4-CEC induced lethal effects at a dose only ¼-log greater than the first dose to elicit stereotypy, perhaps implying a heightened risk of toxicity. These studies were supported by the Drug Enforcement Administration, the National Center for Toxicological Research and the University of Arkansas for Medical Sciences. The findings and conclusions here presented are those of the authors and do not necessarily represent the views of the Drug Enforcement Administration, the Food and Drug Administration or the Department of Veterans Affairs.

Financial Support: These studies were supported by the Drug Enforcement Administration, the National Center for Toxicological Research and the University of Arkansas for Medical Sciences.

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ID: 262
Randomized trial of hepatitis c treatment for people who inject drugs at high risk for secondary transmission

Phillip Coffin, San Francisco Department of Public Health

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: AIDS/Immune

Abstract: AIM: Hepatitis C (HCV) is prevalent and new infections are rapidly increasing among people who inject drugs (PWID). Reducing HCV transmission through treatment of infected PWID may be effective, yet there are few data on sustained viral response (SVR) and reinfection rates in this population in the era of direct-acting antivirals. METHODS: We conducted a pilot randomized trial of directly-observed versus weekly-dispensed ledipasvir-sofosbuvir among PWID with chronic HCV genotype 1 who were actively injecting with others and who met FDA criteria for an 8-week course of treatment. This analysis includes preliminary data on recruitment, treatment, SVR, and relapse or reinfection; final results will be complete early 2018. RESULTS: Of 116 individuals referred as potential participants, 72 (62.1%) attended screening and provided consent, and 33 were eligible. Thirty-one participants enrolled in the study and retention was 89.4% for daily and 97.2% for weekly visits during the treatment phase. One participant (in directly-observed arm) did not complete treatment. For those who completed treatment, HCV RNA was undetectable (< 1 .2 log IU/mL) for 100% (30/30) at end of treatment (EOT). Among those who had completed followup visits by the time of submission, HCV RNA was undetectable for 92.0% (23/25) 12 weeks after treatment, with one participant having a relapse and one a reinfection, and 93.8% (15/16) 36 weeks after treatment, with one additional participant having a reinfection. Thus far, the cumulative reinfection rate by week 36 was 6.5%. CONCLUSION: These results demonstrate that PWID at high risk of transmitting HCV to others can be successfully treated with both directly-observed and weekly-dispensed protocols. The drop-off from referral to screening suggests that additional efforts may be needed to engage high risk PWID, and reinfection in the context of high HCV prevalence remains a concern.

Financial Support: NIDA: R34DA039333 Donated ledipasvir-sofosbuvir from Gilead Sciences

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ID: 264
Changes in driving under the influence of cannabis in the US from 2001-2002 to 2012-2013

Bradley Kerridge, NIH, NIAAA

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Epidemiology

Abstract: AIM: Cannabis is widely used among adults in the United States. Changing attitudes and laws related to cannabis use have prompted increased attention toward driving under the influence of cannabis. The objective of this study was to examine changes in past-year driving under the influence of cannabis (DUIC) between 2001-2002 and 2012-2013. METHODS: Data used was the 2001-2002 National Epidemiologic Survey on Alcohol Use and Related Conditions and 2012-2013 National Epidemiologic Survey on Alcohol Use and Related Conditions-III. Weighted prevalences were calculated for the total sample and sociodemographic subgroups. Adjusted risk differences (ARD) assessed changes in the risk of DUIC between surveys. Adjusted logistic regression models using the marginal prediction approach tested whether adjusted risk differences significantly varied between surveys and across different levels of each covariate. Multivariate logistic regression examined subgroup differences in DUIC in 2012-2013. RESULTS: Prevalence of DUIC doubled (from 1.1% to 2.2%) from 2001-2002 to 2012-2013 (ARD: 1.21%). DUIC increased among nearly all sociodemographic subgroups, with notable increases among men (ARD: 1.37%), 18-to-29-year-olds (ARD: 1.98%) and those with the lowest income (ARD: 1.60%). Although risk of DUIC increased among Whites, Blacks and Hispanics over the survey period, risk differences between these groups were not statistically significant. Results of the multivariate logistic regression showed increased odds of DUIC among men relative to women (Odds Ratio (OR): 2.59), those in the youngest relative to the oldest age group (OR: 5.84) and significantly lower odds among Hispanics (OR: 0.56) and Asian/Pacific Islanders (OR: 0.25) relative to Whites.
CONCLUSION: Results underscore the need for continued efforts to monitor trends in DUIC in the US. Identifying individuals at increased risk of DUIC in the general population can inform prevention and intervention programs with the public health and road safety objective of reducing injury and death from cannabis-related motor vehicle accidents.

Financial Support: The National Epidemiologic Survey on Alcohol and Related Conditions was sponsored by the National Institute of Alcohol Abuse and Alcoholism, with supplemental support from the National Institute on Drug Abuse.

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Company Affiliation: NIH, NIAAA

ID: 265
NIDA CTN Protocol 0068: Design of the accelerated development of additive pharmacotherapy treatment (ADAPT-2) for methamphetamine use disorder trial

Robrina Walker, University of Texas Southwestern Medical Center

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Abstract Category: Program Descriptions

Abstract Detail: Human

Drug Category: Stimulants

Topic: Treatment

Abstract: AIM: To describe the design of an ongoing phase 3 study evaluating the efficacy of extended-release injectable naltrexone (XR-NTX) plus oral bupropion as combination pharmacotherapy for methamphetamine use disorder. BACKGROUND: An open-label pilot study (CTN-0054 ADAPT; N=49) evaluated the combination of XR-NTX (380 mg) administered every four weeks plus daily oral extended-release bupropion (450 mg). Results indicated potential efficacy of the combination medication; it is now being evaluated in a controlled trial. METHOD: The multi-site CTN-0068 ADAPT-2 study is a double-blind, placebo-controlled, randomized trial in which 370 males and females aged 18 - 65 with moderate or severe methamphetamine use disorder are randomly assigned to Active Medication Combination [AMC; extended-release naltrexone injections (380 mg; Vivitrol®) plus once daily oral extended-release bupropion (450 mg)] or Placebo (PLB; matched injectable and oral placebo). Injections are every 3 weeks. Re-randomization may occur per the sequential parallel comparison design. The 12 week medication phase includes twice weekly visits to collect urine drug screens, self-reported drug use, safety assessments, and secondary measures. Site investigators are blinded to re-randomization criteria, primary outcome definition, and evaluation period. Blinded design details were provided to Institutional Review Boards. ANALYTICAL PLAN: The primary outcome measure is a composite of methamphetamine-negative urine drug screen results and will be compared by treatment group. We hypothesize significantly more AMC participants will meet the definition of “responder” (defined as at least 75% methamphetamine-negative urine drug screens during a predetermined evaluation period). Safety and tolerability will be determined by adverse event reporting. Recruitment is expected to end November 2018, and 73 participants have been randomized as of October 2017. CONCLUSIONS: The ADAPT-2 trial is expected to definitively determine the efficacy and safety of the combination of extended-release naltrexone plus bupropion as a treatment for moderate or severe methamphetamine use disorder.

Financial Support: Supported by: National Institute on Drug Abuse of the National Institutes of Health under Award Number UG1DA020024. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health. Alkermes, Inc. donated the injectable extended-release naltrexone (as Vivitrol®) and matched placebo injectable medication.

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Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: University of Texas Southwestern Medical Center

ID: 266
Cocaine self-administration under an IRT>t schedule of reinforcement in Sprague Dawley rats

Dustin Stairs, Creighton University

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Stimulants

Topic: Behavior

Abstract: AIM:A risk factor for vulnerability to drug addiction is high impulsivity, one aspect of impulsivity is a deficit in behavioral inhibition. Previous literature indicates that behavioral inhibition can be studied in rats by using an Inter-Response-Time > t (IRT>t) schedule. In this operant task subjects are reinforced for spacing their responses by a predetermined amount of time. Previous preclinical research in rats has investigated responding on a IRT>t schedule using food as the reinforcer. No previous research in rats has looked at IRT>t responding when drug is the reinforcer maintaining behavior. The point of the current study was to determine if rats would self-administer cocaine on an IRT>t schedule. METHODS:Twenty-four male Sprague-Dawley rats were received at postnatal day (PND) 21 and individually housed in shoebox cages, with lights on from 6:00-18:00 hr. After a seven-day acclimation period (PND 28), animals were trained to lever press under an IRT>1s schedule of reinforcement through food reinforcement. The IRT was increased from 1s to 10s across successive sessions. Once food-maintained behavior was stable, all animals underwent catheterization surgery. Following recovery, animals had 15 sessions to acquire cocaine self-administration (0.3 mg/kg/infusion) with the IRT value increasing from a 1, 3, 7 to a final IRT>10s schedule of reinforcement across daily 2 hour sessions. Following the 15 sessions of acquisition, a complete dose effect curve of cocaine was tested (0, 0.03, 0.1, 0.3 and 1.0 mg/kg/infusion). RESULTS:Results indicate that animals could acquire significant and stable levels of cocaine self-administration. The cocaine dose effect curve was an inverted-U-shaped with peak levels of responding at the 0.1 mg/kg/infusion dose. Response accuracy and mean IRT were flat across the cocaine doses tested indicating that higher doses did not disrupt behavior. CONCLUSION: The results indicate that cocaine self-administration in rats can be maintained under an IRT>t

Financial Support: Financial support was provided by Creighton University College of Arts and Science and the Clare Booth Luce Undergraduate Research Scholarship.

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Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Creighton University

ID: 267
Towards detecting cocaine use using smartwatches in the NIDA Clinical Trials Network: Rationale, design, and methodology

Bethany McLeman, Northeast Node of the CTN/Dartmouth College

Abstract Category: Program Descriptions

Abstract Detail: Human

Drug Category: Stimulants

Topic: Technology Issues

Abstract: AIM: Cocaine use in clinical trials is typically measured via self-report or urine toxicology screens that are intrusive and require frequent site visits; both lack the temporal precision and continuous data collection needed to identify antecedents of cocaine use. The AutoSense chest sensor platform has been validated to detect the timing of cocaine use via wearable physiological sensors. While proven effective in prior studies, the chest sensor is obtrusive. To create a less obtrusive cocaine detection system, a multispectral wrist-worn sensor was developed as part of this study. Twenty-five cocaine-using participants from the Center for Learning and Health at Johns Hopkins University are asked to wear the AutoSense chestband and study-developed smartwatch devices for two weeks during waking hours; drug use is assessed at weekday clinic visits via thrice-weekly urine drug screen, daily Timeline Followback, and random ecological momentary assessment. Data will continually be streamed from the AutoSense devices to study researchers in order to characterize cocaine use and refine the algorithm used to detect interbeat heart rate variability consistent with cocaine use. CONCLUSION: This research will develop a less intrusive device for detecting cocaine use in future NIDA Clinical Trials. Detection of timing of cocaine use via smartwatches could become a novel and convenient technology to aid in clinical trials involving cocaine use, and will extend previous work on this topic.

Financial Support: UG1DA040309, NIDA Intramural Research Program

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Degrees: MA MD Ph.D etc:: BA

Company Affiliation: Northeast Node of the CTN/Dartmouth College

ID: 268
Neurobiological factors underlying risk for alcohol abuse in women

Jessica Weafer, University of Chicago

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Alcohol

Topic: Sex Differences

Abstract: Aim: Inhibitory control deficits are more strongly linked to problematic alcohol consumption in women than in men, suggesting that poor inhibitory control could be a sex-specific risk factor for alcohol use disorders. Here we examined potential biological factors contributing to poor inhibitory control in female and male heavy drinkers. Methods: Female participants reported regular menstrual cycles and were not taking hormonal birth control. We tracked women's menstrual cycle phases over two cycles and then scheduled testing sessions in the early and late follicular phases. Male participants were matched to female participants on alcohol consumption and demographic measures, as well as time between testing sessions. On both sessions, participants performed the stop signal task to assess inhibitory control while undergoing fMRI, and blood samples were taken to assess serum levels of the sex hormone estradiol. Results: Preliminary analyses confirmed that in women, estradiol levels were low in the early follicular phase (mean = 50 pg/ml) and high in the late follicular phase (mean = 185.2 pg/ml). Further, women showed less brain engagement during response inhibition in the early compared to the late follicular phase in right frontal regions, including the right inferior frontal gyrus, middle frontal gyrus, and supplementary motor area. As data collection continues, we will test sex differences in brain engagement across the menstrual cycle. Conclusion: These data suggest that the inhibitory impairments observed in heavy-drinking women are influenced by fluctuating levels of estradiol. Further, they suggest that inhibitory deficits may be exacerbated in the early follicular phase of the menstrual cycle, possibly contributing to increased difficulty controlling alcohol consumption during this time. Identification of such vulnerable periods for problematic alcohol consumption could have important implications for prevention and treatment of AUD in women.

Financial Support: Research supported by NIAAA grant K01AA024519 (JW) and NIH National Center for Advancing Translational Sciences grant UL1 TR000430 (University of Chicago).

First Name: Jessica

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Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: University of Chicago

ID: 269
Cost-effectiveness of extended-release naltrexone versus buprenorphine-naloxone to prevent opioid relapse among individuals initiating treatment in an inpatient detoxification setting

Bruce Schackman, Weill Cornell Medical College

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: AIM We evaluated the cost-effectiveness of extended-release naltrexone (XR-NTX) versus buprenorphine-naloxone (BUP-NX) alongside the recently completed US randomized clinical trial testing their effectiveness in the prevention of opioid relapse as outpatient continuation after initiating treatment in an inpatient detoxification setting. METHODS Costs were evaluated from the healthcare system and societal perspectives over the 24-week intervention, and the entire 36-week observation period. We estimated economic and clinical effectiveness outcomes (Quality-Adjusted Life-Years (QALYs) and abstinent years) and compared incremental costs to incremental effectiveness. Sensitivity analyses included assuming a higher cost of XR-NTX ($1,309/injection vs $704), and excluding participants who were not successfully initiated on their randomized treatment (i.e. per-protocol). RESULTS The mean cost, per-participant, of XR-NTX exceeded that of BUP-NX, including $427 greater study-provided detoxification cost and $1,250 greater study-provided medication/therapy cost, but the only statistically significant difference was from the healthcare system perspective at 24 weeks. Differences in effectiveness were not significant. Considering costs and effectiveness together, BUP-NX was preferred (CONCLUSION Data from this clinical trial indicate BUP-NX is less costly from the healthcare system perspective and similarly effective compared to XR-NTX; higher detoxification and medication costs for XR-NTX were not offset by savings in other costs. The inclusion of additional societal perspective costs (criminal justice, productivity, and patient time and travel) introduced more uncertainty. Per-protocol results were similar, indicating that among those initiating treatment XR-NTX detoxification and medication costs remain important economic concerns.

Financial Support: NIDA (R01DA035808 and P30DA040500); NIDA CTN (U10DA013046, UG1/U10DA013035, UG1/U10DA013034, U10DA013045, UG1/U10DA013720, UG1/U10DA013732, UG1/U10DA013714, UG1/U10DA015831, U10DA015833, HHSN271201200017C, and HHSN271201500065C); and K24DA022412 (Nunes)

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ID: 270
Transitional trends in women's prescription drug misuse: A systematic review

Cami Mosley, University of Cincinnati

Abstract Category: Literature Review

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Other

Abstract: Prescription drug misuse (PDM) has been on the rise since the turn of the millennium and is becoming an international epidemic. Prescription drugs are easily accessible and perceived as less harmful, yet can lead to addiction and death. Women represent half of the world population and pose a unique risk for PDM. For other substances (e.g., cocaine, opiates, nicotine, and alcohol), women bear a greater burden of addiction potential and relapse than men (Becker & Hu, 2008), placing women at an increased risk for long-term consequences such as progressing from misuse to addiction. Despite the risk factors and detrimental consequences for PDM among women, no identified studies have systematically reviewed the literature among adult women. Aim: This systematic review examines the correlates associated with PDM among women. Method: Searches of Academic Search Complete, MEDLINE/PubMed, and PsycINFO were employed to complete a systematic review of studies with equal (female/male) or majority female samples. Studies reporting data on the prevalence and correlates of PDM among women around the globe were included. Results: A total of 59 studies were identified. In over a third of the studies women misused more prescriptions than men, White women had higher rates of PDM than other ethnicities, and physical and mental health issues were found to be the strongest correlates of misuse. Conclusions: As prescriptions become more readily available around the world, the risks for women need to be continuously monitored. When examining use patterns for PDM, the gender gap appears to be closing. However, women have many psychosocial factors contributing to PDM and face disparate consequences of PDM when compared to men. Additional research and targeted interventions are needed.

Financial Support: This research was not financially supported

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ID: 271
Lofexidine in combination with naltrexone improves control over opioid cravings: A pilot randomized, double-blind, placebo-controlled clinical trial

Gretchen Hermes, Yale University School of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: Aims Lofexidine, an α2a adrenergic receptor agonist, has been shown to help with opiate withdrawal. Here we examined whether lofexidine (LFX) in combination with oral naltrexone (NTX) improves opioid craving, opioid use outcomes, and compliance with NTX treatment. Methods This randomized, double-blind, placebo-controlled 12-week relapse prevention study assessed the safety and preliminary efficacy of LFX (N=26) versus placebo (PBO; N=31) for NTX treatment compliance in recently detoxified opioid dependent individuals. LFX/PBO was initiated on Day 2 of the 50mg daily dose of naltrexone and titrated up to 1.2 mg b.i.d. (2.4 mg/day) over 2 weeks, with a 5-day taper in week 12. Vitals, opioid withdrawal symptoms, (Subjective Opiate Withdrawal Scale-SOWS), opioid craving (Opiate Craving Scale-OCS, assessing weekly craving, craving right now, quality of high experienced in past week, control over craving in past week), days on NTX, and percent of opioid-free urines were assessed. Results LFX in combination with NTX was found to be generally safe and well tolerated. There were significant overall reductions by week in SOWS ($p < 0.0001$), but no group differences. LFX treated patients showed greater reductions in systolic and diastolic blood pressure (SBP/DBP) than the placebo group ($p < 0.01$). Opioid craving decreased across the trial with a main effect of week, [$F (13, 485) = 2.05$, $p < 0.02$], and control over opioid cravings was significantly higher in the NTX/LFX than the NTX/PBO group [$F (1, 55) = 4.88$, $p < 0.03$]. Both groups showed equivalent levels of oral NTX compliance and opioid free urines. Conclusion These findings indicate that LFX at 2.4 mg/daily was safe and improved self-reported control over opioid cravings during the initial 3 months of NTX treatment with equivalent NTX compliance and opioid use outcomes across both groups. Further assessments of adjunct LFX with other opioid relapse prevention treatments such as buprenorphine are warranted.

Financial Support: NIH R01-DA-018219 and US World Meds.

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Degrees: MA MD Ph.D etc:: MD, PhD

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ID: 272
Polyvictimization and women's risk of drug overdose

Janna Ataiants, Drexel University Dornsife School of Public Health

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Behavior

Abstract: AIM. Both exposure to violence and overdose represent stressful, potentially traumatic experiences and are highly prevalent among women who use illicit drugs. Yet, there has been little inquiry into a connection between violence and overdose. This study sought to identify an association between polyvictimization and women's overdose. METHODS. 218 women were recruited from Philadelphia-based harm reduction sites in 2016-2017. A 16-item instrument measured exposure to types of sexual assault, physical violence, verbal abuse, and coercive control during adulthood. A continuous measure of polyvictimization summed these 16 types; a categorical measure of polyvictimization divided participants into 'higher-scored' (9-16 items), 'lower-scored' (1-8 items), and 'not victimized.' Negative binomial regression estimated associations between polyvictimization and lifetime overdose rates controlling for opioid use, injection, incarceration, sex work, and unstable housing. RESULTS. Lifetime opioid use (89%) and injection (80%) were common. Most participants reported history of sex work (75%), incarceration (70%), and past 12 month unstable housing (71%). More than two-thirds (69%) experienced at least one lifetime overdose. The average number of victimization types was 8.1 and the majority of women were either higher- (41.7%) or lower-scored (46.8%). Compared to women who were not victimized (11.5%), higher-scored women had an increased risk of overdose (IRR: 2.01, 95%CI: 1.06-3.80), but the association was not significant for lower-scored women. Each additional victimization type increased the overdose rate by 4% (95%CI: 1.00-1.08). CONCLUSION. Polyvictimization was associated with an increased risk of overdose among women with a history of illicit drug use. Findings underscore the need to scale-up victimization support and overdose prevention services for disfranchised women. Female overdose survivors need to be screened for exposure to multiple forms of violence.

Financial Support: NIDA T32DA007233-33

First Name: Janna

Last Name: Ataiants

Degrees: MA MD Ph.D etc:: MPA, MA

Company Affiliation: Drexel University Dornsife School of Public Health

ID: 273
Shooting gallery networks and risk: Women's injection venue affiliation networks in Tijuana, Mexico

Brooke West, University of California San Diego

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: Aim: There is growing recognition of the importance of 'place' and its effect on health. In Tijuana, HIV incidence is rising among female injectors and recent studies indicate concentrations of HIV in shooting galleries (i.e. places where people inject). In this study, we examine women's network connections to shooting galleries and how risk varied across venues. Methods: Female sex workers who inject (FSW-PWID) aged 18 years or older were recruited using convenience sampling in Tijuana, Mexico. Participants completed a survey and were tested for HIV, syphilis, N. gonorrhoeae, Chlamydia and Trichomonas vaginalis. Social network analysis was used to identify clusters in the shooting gallery network. Results: Of 66 FSW-PWID, the median age was 38 and half were currently partnered. Reporting of injection and sexual risk behaviors at injection sites was high and 39% of women tested positive for one or more STI at the time of interview. In the past 30 days, FSW-PWID visited an average of 1.6 (range: 0-9) shooting galleries. The shooting gallery network was composed of a large core of 17 women and 3 main venues that were more densely connected (density=0.52). Women in the core were more likely than women in the periphery to report backloading, to witness a fight in the past 30 days, and were less likely to report access to free clean syringes and to feel safe at injection venues. STI incident cases were clustered in a few shooting galleries. Conclusions: These preliminary analyses demonstrate that women who are affiliated to certain shooting galleries have different risk profiles, suggesting that venue affiliation networks are a key component of risk environments that need to be examined. Venue and network-based information provides insight into how we can develop and target interventions to reach those who need it most, especially during periods of HIV/STI outbreaks.

Financial Support: NIH K01DA041233 and NIH R37DA019829

First Name: Brooke

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Company Affiliation: University of California San Diego

ID: 274
Beyond alcohol: Client change talk about opioids, cannabis, and cocaine

Jon Houck, University of New Mexico

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Treatment

Abstract: AIM. Client within-session speech favoring behavior change (“change talk”:CT) or the status quo (“sustain talk”:ST) has garnered empirical support as a mechanism of behavior change, but the majority of this work has been conducted with treatment-seeking alcohol users. Relatively little is known about clients who use other drugs like opioids, cannabis, or cocaine. The goal of this study was to evaluate existing audio-recorded motivational interviewing (MI) intervention sessions from a completed emergency department SBIRT study, compare participant speech between substances, and test relationships between participant speech and outcomes across opioids, cannabis, cocaine, and alcohol. METHODS. A sample of 50 (M age=37.1 years (SD=12.4), 72% male) participant audio-recordings was randomly selected for evaluation with the MISC 2.5 coding system and CACTI software. Participants had identified their primary problem substance. Participant statements about alcohol (e.g.,"alcohol CT") and the substance (e.g.,"drug CT") were coded separately. The alcohol sample was defined using participant speech. RESULTS. Mean AUDIT-C (M=7.54,SD=2.31) and DAST-10 (M=6.36,SD=2.33) scores were somewhat high. The identified problem substances were opioids (44%), cannabis (40%), and cocaine (16%). For AUDIT-C, there was a moderate effect (d=0.52) separating the constructed alcohol and non-alcohol samples. A moderate effect (d=0.67) separated opioid and cannabis users on drug CT, but no significant differences were observed between cannabis, cocaine, and opioids on drug CT or ST. Negative binomial regression revealed marginal effects of alcohol ST on proportion of days abstinent (b=-4.3,p=.20,n=10), of drug CT on cannabis use days (b=-3.3,p=.13,n=17), and for drug CT on cocaine use days (b=-9.2,p=.18,n=8). No effects were seen for opioids (n=18). CONCLUSION. In this non-treatment-seeking sample, cannabis, cocaine, and alcohol suggested relationships with client speech consistent with MI theory, but opioids did not. Further study is needed to understand the degree to which these relationships exist in opioid users, and whether they differ between treatment-seeking and non-treatment-seeking populations.

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First Name: Jon

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Company Affiliation: University of New Mexico

ID: 275
Understanding the social geography of overdose prevention site utilization in Vancouver, Canada: Facilitators and barriers to engagement

Alexandra Collins, BC Centre on Substance Use

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Prevention

Abstract: Aim: In response to an overdose epidemic driven by fentanyl-adulterated opioids, low-threshold supervised drug consumption facilities, known as Overdose Prevention Sites (OPS), were rapidly implemented in Vancouver, Canada in December 2016. We aimed to understand the ways that the social geography of OPS shaped access to and utilization of these interventions among people who use drugs (PWUD), hypothesizing that engagement would be contingent upon previously established spatial patterns. Methods: This study draws on ongoing ethnographic fieldwork beginning in December 2016, assessing the impact of OPS in Vancouver as an emergency response. Data include qualitative interviews with 72 PWUD recruited from four OPS and approximately 200 hours of observational fieldwork. Data were analyzed using NVivo qualitative software, with attention paid to the interplay of structural vulnerability and spatial practices of PWUD in relation to OPS. Results: The majority of OPS are located in the core of Vancouver's street-based drug scene and were thus situated within the existing social geographies of PWUD. Utilization of an OPS was often contingent on its geographic placement in relation to drug dealing and street vending locations and low-income housing. However, routine policing (e.g. alleys adjacent to OPS, outside OPS), including the enforcement of court or police-mandated area restrictions (i.e. 'red zones') and warrant searches, often deterred participants from accessing specific OPS. As such, participants' utilization of OPS often produced a tension between the need to access overdose-related services and these social-structural constraints. Within this context, public injecting was often viewed as a rational response given the barriers of shelter policies (e.g. no re-entry), police-implemented 'red zones', and long OPS wait-times. Conclusion: Our findings highlight how routine policing near OPS significantly impacted utilization of such services. Prioritizing public health within the context of an emergency is urgently needed to ameliorate particular social-structural factors creating barriers to OPS engagement.

Financial Support: This research is supported US National Institutes of Health (R01DA044181)

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Last Name: Collins

Degrees: MA MD Ph.D etc:: MSc, PhD Candidate

Company Affiliation: BC Centre on Substance Use

ID: 276
Problem-gambling severity, suicidality and DSM-IV Axis I and II psychiatric disorders

Silvia Ronzitti, Yale University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Epidemiology

Abstract: Aim: Despite the strong association between psychiatric disorders and problem/pathological gambling, few studies have investigated the relationships between Axis I and II psychiatric disorders, problem-gambling severity and suicidal thoughts/behaviors. We examined how suicidality (none, thoughts alone, attempts) moderated the relationships between problem-gambling severity and psychopathologies. Methods: We analyzed data from 13,543 participants of the National Epidemiologic Survey of Alcohol and Related Conditions (NESARC) study. First, differences in sociodemographic characteristics and psychopathologies were analyzed according to problem-gambling severity and suicidality status. Second, we performed logistic regression analyses to assess whether the relationship between problem-gambling severity and DSM-IV Axis I and Axis II disorders was moderated by suicidality level. Results: At-risk or problem/pathological gambling showed higher rates of almost all Axis I and Axis II psychiatric disorders compared to non-gamblers, except for depressive episode where low-risk gamblers showed a lower rate than low frequency gamblers/non-gamblers. Logistic regression analyses showed that at-risk pathological gamblers had a higher odds ratio for any and Substance use disorders and any personality disorder. Odds ratio interaction analysis identified that suicidality moderates the relationship between problem-gambling severity and personality disorders, particularly those in cluster B, while the relationship between Axis I psychiatric disorder and gambling behavior was not modulated by suicidality. Conclusion: Our results suggest a complex relationship between suicidality, problem-gambling severity and psychiatric disorders. Our findings suggest that low level of gambling behavior may have a mood-protecting influence. Moreover, the stronger relationship between problem-gambling severity and personality disorders in people with no as compared to some suicidality suggests that some of the relationship between greater problem-gambling severity and Axis II psychopathology is accounted for by increased suicidality. The findings have implications for clinical interventions targeting suicidality in individuals with gambling disorders.

Financial Support: No financial support was received for data collection for this study. Dr. Ronzitti currently receives support as a VA advanced medical informatics postdoctoral fellow funded through VA Office of Academic Affiliations. Dr. Potenza's involvement was supported through the National Center for Responsible Gaming Center of Excellence grant and from the National Center on Addiction and Substance Abuse. Dr. Kraus' involvement was supported by the VISN 1 New England MIRECC. The views presented in this manuscript are those of the authors and do not necessarily reflect those of the funding agencies. The content of the manuscript does not necessarily reflect the views of any of the funding agencies.

First Name: Silvia

Last Name: Ronzitti

Degrees: MA MD Ph.D etc:: MD

Company Affiliation: Yale University

ID: 277
Trends in opioid prescribing volume and risk indicators in the context of PDMP policy changes: 2010-2016

Jenna McCauley, Medical University of South Carolina

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Policy

Abstract: Aim: To examine statewide trends in overall opioid prescribing volume and higher-risk opioid prescribing in the context of key state prescription drug monitoring program (PDMP) policy changes. Methods: Administrative data from the South Carolina Reporting and Identification Prescription Tracking System (SCRIPTS), representing all controlled substances dispensed in the state between January 1, 2010 and December 31, 2016 were analyzed. Data were de-identified: prescribers, dispensers, and patients were assigned random unique identifiers to facilitate analysis. Indicators assessed included: (1) rate of opioid analgesics prescribed per 1,000 state residents; (2) rate of multiple provider episodes for opioid analgesics per 100,000 residents; (3) percent of patients receiving more than an average daily dose of 90 morphine milligram equivalents of opioid analgesics; (4) percent of patients prescribed long-acting/extended-release opioids who were opioid naive; (5) percent of patient prescription days with overlapping opioid prescriptions; and, (6) percent of patient prescription days with overlapping opioid and benzodiazepine prescriptions. Key prescription drug monitoring policy changes and other selected events were identified in collaboration with the SCRIPTS program. Results: Annual overall rate of opioid analgesics prescribed per 1,000 state residents ranged from 797 (2010) to 948 (2016). The rate of multiple provider episodes ranged from 62 (2010) to 26 (2016) per 100,000 residents. Percent of patients receiving high daily doses or prescribed extended release opioids ranged from 8.7% (2010) to a dip of 6.1% (2015) and from 19.9% (2010) to 9.1% (2016), respectively. Percent of patient prescription days with overlapping opioid prescriptions or with overlapping opioid and benzodiazepine prescriptions ranged from 15.8% (2010) to 14.1% (2016) and a high of 17.4% (2013) to 14.5% (2016), respectively. Conclusion: Results indicate an increase in the rate of overall opioid prescribing between 2010 and 2016; however, rates of higher-risk prescribing behaviors consistently declined over this timeframe.

Financial Support: CDC 1U17 CE002730 (All Authors); NIDA K23 DA036566 (JLM).

First Name: Jenna

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Company Affiliation: Medical University of South Carolina

ID: 278
Experiences in emergency department settings among people who use drugs in Vancouver, Canada

Samara Mayer, BC Centre on Substance Use

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Other

Abstract: Aim: People who use drugs (PWUD) experience disproportionately high rates of infectious diseases, opportunistic infections, and physical trauma leading to frequent contact with emergency departments (ED) and hospital admissions. Additionally, in the context of the opioid overdose crisis ED are currently experiencing a rapid increase in admissions for non-fatal overdoses. To date, however, little attention has been paid to the experiences of drug-using populations in relation to emergency care. This study examines the experiences and perspectives of PWUD regarding ED care and applies a social violence framework to examine the contextual influences on ED outcomes. Methods: Semi-structured qualitative interviews were conducted with 30 PWUD who had been discharged from hospital against medical advice within the past two years in Vancouver, Canada. In-depth interviews elicited perceptions regarding hospital care and experiences in hospital settings, including ED. This research was particularly concerned with social-structural influences on access to and retention in hospital care. Results: Our findings demonstrate how experiences and perceptions of social violence operating within ED settings drive adverse experiences among PWUD, including: (1) perceived differential treatment and discrimination stemming from the stigmatization; (2) inadequate pain and symptom management due to the lack of patient-centeredness for drug-using populations (e.g., tailored approaches for patients who are not responding well to guideline-based treatment approaches); (3) perceptions of neglect and inadequate management of acute health needs; and, (4) lack of patients' agency and autonomy in care decisions, leading to conflict with health personnel. Conclusion: Findings demonstrate the need to modify current care practices, training and policies in emergency settings in order to incorporate an attention to the social conditions driving adverse care among PWUD. Findings also point to the need for collaboration with this patient population to develop patient-centered practices that improve care and produce greater health equity.

Financial Support: US National Institutes of Health (R01DA043408)

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Degrees: MA MD Ph.D etc:: MPH

Company Affiliation: BC Centre on Substance Use

ID: 280
Rapid scale-up of low-threshold supervised consumption sites in response to a fentanyl-driven overdose crisis: A rapid ethnographic study in Vancouver, Canada

Ryan McNeil, University of British Columbia, BC Centre on Substance Use

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Prevention

Abstract: AIM: North America's opioid epidemic has resulted in an unprecedented overdose crisis. In 2016, British Columbia (BC), Canada declared a provincial emergency due to a fentanyl-related opioid overdose epidemic and later supported the rapid implementation of low-threshold supervised consumption facilities, termed Overdose Prevention Sites (OPS). These sites provide people with spaces to consume drugs under peer worker supervision and be administered naloxone in the event of overdose. This study explores the implementation and impacts of OPS in Vancouver, BC's Downtown Eastside – a neighborhood with more than 5000 people who use drugs (PWUD) and an existing supervised injection facility (Insite). METHODS: Between December 2016 and April 2017, we conducted a rapid ethnographic study of the implementation of OPS involving approximately 200 hours of ethnographic observation at four OPS and in-depth interviews with 72 PWUD recruited from these sites. Data were analyzed thematically in NVivo. RESULTS: The rapid scale-up of OPS mitigated the impacts of implementation gaps in harm reduction programming to enhance the overdose response. Participant accounts demonstrated that the implementation of OPS across multiple locations in close proximity to drug scene areas minimized geographic barriers to services, and ensured access among homeless PWUD. Moreover, OPS promoted the effective and equitable delivery of supervised consumption services by enabling individual sites to implement diverse operating models, including peer-based models and the accommodation of a wider range of drug use practices (e. g., smoking, assisted injections). These approaches enabled uptake of overdose-focused interventions among populations not served by Insite due to its operational capacity, location, and restrictions stemming from federal drug laws (e.g., prohibition of assisted injections). CONCLUSION: Findings demonstrate the feasibility of the rapid scale-up of low-threshold supervised consumption services in response to a public health emergency, and these measures should be considered in North American settings affected by the overdose epidemic.

Financial Support: US National Institutes of Health (R01DA043408)

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Last Name: McNeil

Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: University of British Columbia, BC Centre on Substance Use

ID: 281
Paternal alcohol exposure reduces operant alcohol self-administration in adult male and female offspring

Therese Kosten, University of Houston

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Alcohol

Topic: Behavior

Abstract: AIM: Familial transmission of alcohol use disorders reflects genetic and environmental factors. For decades, studies in rodents demonstrated that paternal alcohol exposure produces cognitive and physiological abnormalities in offspring. The mechanisms of these effects may reflect epigenetic modifications transmitted through the male germ line. While mouse studies show that paternal alcohol exposure alters sensitivity to alcohol in offspring, no studies have examined whether paternal alcohol exposure impacts operant alcohol self-administration behaviors in offspring. METHODS: We exposed male Wistar rats to a chronic intermittent ethanol procedure (CIE) in alcohol vapor chambers (16 h/day; 5 days/week; 6 weeks) or to air. Eight weeks later, rats were mated with alcohol-naive females and adult offspring (F1) were assessed on acquisition and maintenance of alcohol self-administration. Alcohol- and control-sired F1 offspring were trained to lever press for increasing alcohol concentrations (2.5%, 5%, & 10%, v/v). Tests were conducted under a progressive ratio schedule of reinforcement at 5% and 10% alcohol. RESULTS: During training sessions, alcohol-sired offspring of both sexes self-administered less alcohol (5% & 10%) relative to control-sired offspring. Under progressive ratio tests, alcohol-sired offspring of both sexes self-administered less alcohol (5% & 10%) relative to control-sired offspring. In addition, alcohol-sired offspring displayed less motivation to obtain alcohol (10%), as indicated by lower final ratios completed compared to control-sired offspring. Extinction and reinstatement procedures in the F1 generation are ongoing. CONCLUSION: Overall, these results indicate that paternal alcohol exposure prior to conception induces long-lasting effects that are protective against alcohol-motivated behaviors in offspring.

Financial Support: U01-AA013476

First Name: Therese

Last Name: Kosten

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: University of Houston

ID: 282
Extended-release vs. oral naltrexone for alcohol dependence treatment in primary care

Mia Malone, New York University School of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Alcohol

Topic: Treatment

Abstract: Aim Naltrexone is first-line pharmacotherapy for alcohol use disorders (AUD). Oral naltrexone (O-NTX) is under-prescribed in primary care and possibly limited by poor adherence. Monthly injectable extended-release naltrexone (XR-NTX) may improve rates of medication adherence, good clinical outcomes (Aim 1), and cost savings (Aim 2). Methods This is an on-going randomized, open-label, comparative effectiveness trial of 24 weeks of XR-NTX vs. O-NTX as AUD treatment in primary care at a public hospital in New York City. Adults (>18yo) with AUD randomized to XR-NTX (380mg/month) vs. O-NTX (50-100mg/day) in a Medical Management. The primary outcome is a Good Clinical Outcome (GCO) across weeks 5-24: abstinence or moderate drinking and 0-2 days of heavy drinking per month. This preliminary, descriptive analysis presents Week 0-5 results among all participants. Results N=237 participants were randomized from 6/14-9/17: mean age 48.5 (SD 10.6); 71% male; 54% AA, 21% Hispanic; 41% employed. Mean AUDIT scores at baseline: 24.2 (SD 8.0); mean drinks/day 9.6 (SD 11.6) with 29% abstinent vs. 61% heavy drinking days. Medication induction was robust, 115 of 117 (98.2%) initiating XR-NTX and 120 (100%) filled or received an initial O-NTX prescription. The GCO was reported by 41% XR-NTX and 47% O-NTX at Week 5. During Week 1-5, mean drinks/day were 3.1 (SD 6.1), 63% abstinent / 22% heavy drinking days for XR-NTX; 2.4 (SD 4.03), 61% abstinent / 22% heavy drinking days for O-NTX. 62% received XR-NTX injection #2 and 67% received O-NTX monthly refill #2. Adherence self-report for O-NTX at Week 5 indicated moderate averaged daily adherence. Conclusion This on-going XR vs. oral naltrexone alcohol primary care treatment trial recruited a primarily male, unemployed, ethnic minority adult population. Initial acceptance of both XR and O-NTX was high. Primary outcomes will focus on drinking reductions and cost and value comparisons during weeks 5-24.

Financial Support: Supported by NIH/NIAAA R01AA020836.

First Name: Mia

Last Name: Malone

Degrees: MA MD Ph.D etc:: BA

Company Affiliation: New York University School of Medicine

ID: 283
Trajectories of repeated AUDIT-C scores as a phenotype for GWAS discovery

Rachel Vickers Smith, University of Louisville, School of Nursing

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Alcohol

Topic: Epidemiology

Abstract: AIM Valid phenotypes for hazardous drinking are particularly important as traits in genome-wide association studies (GWASs). The Alcohol Use Disorders Identification Test – Consumption (AUDIT-C), a widely used, valid, and reliable alcohol screening instrument, identifies individuals with hazardous or harmful drinking. We used repeated measures of AUDIT-C to identify a trait that reflects hazardous drinking over time. METHODS We analyzed AUDIT-C scores from 495,178 Veterans enrolled in the Million Veteran Program (MVP). We included 2,833,189 AUDIT-C scores from 2008-2017 and used zero-inflated Poisson GBTM to identify clusters with similar drinking patterns. To account for decreasing drinking over time, age was used as the model time scale. We compared models with 2-6 trajectories, using the Bayesian Information Criterion to select the optimal model. Trajectories were validated against alcohol use disorder (AUD) diagnoses. RESULTS On average, Veterans had 7 AUDIT-C assessments (SD=3.2) over 6 years (SD=2.3), 47% of which had a value of 0. After comparing the BIC and the stability of estimates between models, the 4- and 5-group models were examined further. We selected the 4-group trajectory model as the optimal one because it had both the highest median probability of membership in each group (>90%) and a low risk (
Financial Support: The research was funded by the Office of Research and Development, Department of Veterans Affairs.

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Degrees: MA MD Ph.D etc:: PhD, MPH

Company Affiliation: University of Louisville, School of Nursing

ID: 284
The opioid epidemic: Media attention to a white-death crisis

Stephanie Peglow, Eastern Virginia Medical School

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Ethnic Differences

Abstract: Aim: Opioid overdose has been a major cause of death for decades. But there is evidence that media coverage of the consequences of drug use changes based on who is affected: Whites are often portrayed as victims of addiction, while coverage of Blacks and other people of color are described in terms of "drug crime" and "arrests." We test whether media attention and portrayal of opioid-related deaths as an epidemic was related to increases in White opioid-related death rates. Methods: We searched major newspapers and tallied counts of articles by year from 2000 to 2015 for addiction-related and drug-crime coverage separately. We used time series models to compare these trends to yearly all-drug and opioid poisoning death rates for Blacks and Whites constructed from the 2000 to 2015 public use Mortality Multiple Cause-of-Death files. Results: There was a sharp increase in addiction-related media coverage in 2006 that corresponded to a concomitant increase in the White all-drug poisoning death rate. Both the White death rate and addiction-related media coverage continued to increase for the remainder of the period. Drug-crime media coverage exhibited a u-shaped curve, which roughly paralleled decreases in the death rate among Blacks in 2007 and 2008, stability in the death rate from 2008 to 2010 and increases from 2011 to 2015. Conclusion: Media construction of opioid overdose as an epidemic was related to increasing rates of White opioid poisonings, but media depiction of drug-related crime seemed to be driven by changes in the Black death rate, rather than the year-to-year increases in the White death rate. While media coverage both reflects and drives social norms, it is likely that inequities in media portrayals of addiction must be acknowledged before we can adequately address long-standing and persistent racial disparities in medical, social and legal treatment of individuals with addiction.

Financial Support: Research in Addiction Medicine Scholars (RAMS) Program (R25DA033211 from National Institute on Drug Abuse

First Name: Stephanie

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ID: 285
How characteristics of nonmedical prescription opioid use in adolescence relates to substance use disorder symptoms in adulthood

Philip Veliz, University of Michigan

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: AIMS: The purpose of this study is to examine how motives, co-ingestion, frequency of use, and context of nonmedical prescription opioid use during adolescence are associated with substance use disorder (SUD) symptoms in adulthood. Methods: U.S. Nationally representative samples of 9,420 respondents from the Monitoring the Future study were followed longitudinally from adolescence (modal age 18) to age 35. Results: Respondents who nonmedically used prescription opioids for reasons other than pain relief (AOR = 2.54, 95% CI = 1.57, 4.10), respondents who co-ingested prescription opioids with other substances (AOR = 2.24, 95% CI = 1.54, 3.27), and respondents who engaged in frequent nonmedical opioid use (AOR = 2.47, 95% CI = 1.46, 4.18) during adolescence had two-and-a-half times greater odds of indicating two or more (2+) SUD symptoms in adulthood (meeting symptom criteria for mild substance use disorder) when compared to respondents who did not engage in such opioid use during adolescence. Respondents who initiated opioid use in a medical context during adolescence had similar odds of 2+ SUD symptoms in early adulthood when compared to their non-using peers, while respondents who initiated opioids in a nonmedical context (with or without subsequent medical use) during adolescence had greater odds of indicating 2+ SUD symptoms in early adulthood when compared to their non-using peers. Conclusions: The findings indicate that motives, co-ingestion, frequency, and medical use history associated with nonmedical prescription opioid use during adolescence are significant factors for signaling a SUD in early adulthood. Initial exposure to prescription opioids in a medical context (with or without subsequent nonmedical use) during adolescence was not associated with SUD symptoms in early adulthood. Health professionals can detect high-risk adolescent patients based on nonmedical prescription opioid use characteristics.

Financial Support: Supported by R01DA001411, R01DA016575, R01DA031160 and R01DA036541.

First Name: Philip

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Company Affiliation: University of Michigan

ID: 286
Effects of co-occurring prenatal tobacco and cannabis exposure on cortisol reactivity at early school age

Pamela Schuetze, Buffalo State College

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Perinatal

Abstract: AIM Prenatal tobacco and cannabis exposure affect fetal development via fetal ischemia and hypoxia, resulting in poor fetal growth and representing a condition of toxic stress. Little is known about co-occurring exposure to tobacco and cannabis (PTCE) on stress reactivity. We examined the role of PTCE on stress reactivity in early school age as reflected in cortisol responses to two laboratory stressors, hypothesizing a blunted response in PCE children. METHODS The sample consisted of 201 families (63 tobacco only, 81 PTCE, and 57 non-exposed; 102 boys). Mothers were assessed once in each trimester of pregnancy. Mothers and children were assessed at various time points throughout the first 5 years of life, and at kindergarten age. Maternal tobacco and cannabis use during pregnancy was assessed using self-reports (Timeline Follow Back Interviews), salivary assays, and infant meconium for tobacco and THC metabolites. Cortisol was assessed at 4 time points in the lab, two before the stress paradigms, and two 20 and 40 minutes after stress. RESULTS Results from multi-level growth curve modeling with intercept, linear, and quadratic slope of time as outcomes, and prenatal substance exposure as the level 2 predictors, yielded a significant interaction effect of number of cigarettes and joints per day on quadratic slope of cortisol. Non-exposed children exhibited a normative cortisol response to stress with an initial increase post-stress followed by stable values. Children exposed to low cigarettes/day but high number of joints/day had no cortisol response. Children exposed to high levels cigarettes/day had a decreasing cortisol response to stress, regardless of level of cannabis exposure. CONCLUSION Results highlight the importance of examining joint, dose-response effects of tobacco and cannabis, especially given that these two substances co-occur most frequently in pregnancy.

Financial Support: National Institute on Drug Abuse DA019632

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Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: Buffalo State College

ID: 287
Intravenous alcohol self-administration in participants with alcohol use disorder: Piloting a progressive-ratio schedule

Christina Nona, Centre for Addiction and Mental Health

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Alcohol

Topic: Behavior

Abstract: Aims: i) To utilize a progressive-ratio (PR) schedule to examine motivation to self-administer alcohol in the laboratory in participants with Alcohol Use Disorder (AUD), and ii) To examine whether motivation to self-administer alcohol relates to alcohol consumption, subjective responses to alcohol, and craving. Methods: Non-treatment-seeking adults (N=9) with AUD were recruited to complete an intravenous self-administration (IVASA) session using a PR schedule. Each work set required participants to press a button in order to receive an alcohol infusion, with increasing button presses required as the session progressed. Participants completed serial measures of subjective responses. Breath alcohol concentration (BrAC) was measured throughout the session. Results: Results showed that a mean peak BrAC of 82 ± 28 mg% was attained during the session. An average of 13.7 ± 3.3 work sets were completed, with an average of 6875 ± 4019 button presses. As expected, peak BrAC was correlated with number of completed work sets, $r = 0.903$, $p = 0.001$. When controlling for age (43 ± 12.85 years), there were no significant correlations between number of work sets completed and AUD symptom count (3.11 ± 1.27), $r = 0.45$, $p = 0.26$; number of weekly heavy drinking episodes (2.89 ± 2.52), $r = 0.55$, $p = 0.16$; and scores on the Alcohol Use Disorders Identification Test (17.11 ± 2.85), $r = 0.52$, $p = 0.19$. The number of work sets completed also did not correlate significantly with any of the subjective measures taken at 8, 90, and 180 mins into the session. Conclusions: Mean BrAC obtained is comparable to values observed in other PR studies using IVASA. There appears a moderate relationship between worksets completed and drinking outcomes, however the small sample size may, in part, explain the lack of signifcant findings, thus limiting interpretation.

Financial Support: NIAAA (R21AA023967-01A1, P60 AA007611)

First Name: Christina

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Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: Centre for Addiction and Mental Health

ID: 288
Pharmacological characterization of six synthetic opioids: Radioligand binding and analgesia activities

Takato Hiranita, NCTR/FDA

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Opiates/Opioids

Topic: Dependence

Abstract: Aim: Opioid overdose is now the leading cause of unintentional drug-related deaths in the U.S. Recently, illicitly manufactured synthetic opioids have emerged in the U.S. recreational drug market as a significant threat to public health. Currently, there is little or no published information regarding the pharmacological properties of these substances. Thus, the present study characterized opioid-like activities of five novel fentanyl analogues (acryl fentanyl, beta-hydroxy-thiofentanyl, 4-fluoroisobutyrly fentanyl, furanyl fentanyl, and tetrahydrofuran fentanyl) and U-47700 in vitro and in vivo. Methods and Results: In radioligand binding assays using [3H]DAMGO and the rat mu-opioid receptor (MOR) stably expressed in Chinese hamster ovary cells, all test substances exhibited sub-nanomolar affinity for MOR similar to fentanyl and morphine. Furthermore, assessments of stimulation of [35S]GTPγS binding indicated that all test substances functioned as MOR agonists (Emaxs in %: 55.5—98.3). On the other hand, cumulative-dose injections of each test substance (S.C., N=8 per group) produced dose-dependent increases in tail-flick latency (ED50s: 0.158—3.18 mg/kg) in CD1 mice using warm water tail withdrawal procedures (55°C) and were similar to or less potent than fentanyl [ED50: 0.122 mg/kg]. The analgesia produced by all test substances, similar to fentanyl and morphine, was blocked by pretreatment with the opioid antagonist, naltrexone (10 mg/kg, S.C.). Conclusion: All six test substances have analgesic effects and function as an MOR agonist. Supported by the Drug Enforcement Administration (DEA), National Center for Toxicological Research (NCTR), Veterans Affairs (VA) and University of Arkansas for Medical Sciences. The findings and conclusions in this report are those of the authors and do not necessarily represent the views of the DEA, Food and Drug Administration, or VA.

Financial Support: Supported by the Drug Enforcement Administration (DEA), National Center for Toxicological Research (NCTR), Veterans Affairs (VA) and University of Arkansas for Medical Sciences. The findings and conclusions in this report are those of the authors and do not necessarily represent the views of the DEA, Food and Drug Administration, or VA.

First Name: Takato

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Company Affiliation: NCTR/FDA

ID: 289
Empirical evidence of different clinically meaningful opioid withdrawal phenotypes

Kelly Dunn, Johns Hopkins University School of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Mechanisms of Action

Abstract: Aim: Opioid withdrawal severity is associated with poor treatment response and relapse. Variation in opioid withdrawal expression has not been well delineated. We hypothesize different withdrawal phenotypes are associated with clinical response. Methods: This is a secondary analysis of a double-blind, residential, RCT comparison of clonidine, tramadol-ER, and buprenorphine for supervised opioid withdrawal (Dunn et al., 2017; NCT00301210). Subjects were maintained on morphine for 7-10 days and underwent a 0.4mg IM naloxone challenge session before being randomly assigned to experimental group. Subjects were then followed for 14 days and medications were tapered to placebo over 7-days. Self-reported, objective, and physiological measures of withdrawal were collected during the challenge session and RCT. Results: A total of 89 participants were evaluated. Area-under-the-curve (AUC) values from the naloxone challenge session Subjective Opioid Withdrawal Scale (SOWS) were derived and compared with K-means cluster analyses. Results suggested LOW (N=52) and HIGH (N=37) withdrawal phenotypes. The HIGH group was more likely to be female (p
Financial Support: R01DA018125 and K24DA023186 (Strain) R01DA035246 and R01DA040644 (Dunn)

First Name: Kelly

Last Name: Dunn

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Johns Hopkins University School of Medicine

Contact Title: Postdoc. Fellow

ID: 291
Variability in the definition of “daily use” of cannabis across three large U.S. epidemiological surveys

Chloe Lee, Columbia University

Abstract Category: Literature Review

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Epidemiology

Abstract: Aim: Thresholds for daily use of cannabis can vary across studies that examine cannabis use frequency. As such, subjects who meet criteria for classification as “daily users” in one study may not meet daily use criteria in another. We reviewed the literature to compile definitions of daily use of cannabis across studies using data from three large U.S. epidemiological surveys. Methods: We evaluated studies on cannabis use that used data from the National Survey on Drug Use and Health (NSDUH), the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC), and the Youth Risk Behavior Survey (YRBS). PubMed search terms included, but were not restricted to, “Cannabis,” “Marijuana abuse,” and “daily/frequent/regular/almost daily/chronic cannabis use.” We then standardized the definitions in terms of days per year. Results: Of the 110 articles that were considered, 18 studies measured daily use of cannabis using 15 different definitions. Five definitions from seven studies expressed daily use in days per unit time, while the remaining ten definitions from twelve studies assessed daily use in number of uses per unit time. The most common definitions across studies that measured daily use in terms of number of days of use were “300 or more days per year” (n = 2) and “21-30 days per month” (n = 2). Standardized daily use definitions included 240+, 252+, 300+, 336+, and 360+ days of cannabis use in the past year. Conclusion: There is wide variability in definitions of daily use of cannabis. Differences in measurement may lead to differences in associations between cannabis use and correlates such as cannabis use disorder. Next steps include comparing demographics across definitions and determining whether association with health correlates of cannabis use differ between different thresholds of daily use.

Financial Support: Supported by: 1R0DA037866 (Martins)

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Last Name: Lee

Degrees: MA MD Ph.D etc:: BA

Company Affiliation: Columbia University

ID: 292
Implementing substance use screening in rural federally qualified health centers: Results from focus groups

Bethany McLeman, Northeast Node of the CTN/Dartmouth College

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Technology Issues

Abstract: Aims: A recently initiated ancillary study of CTN-0062-Ot seeks to integrate screening and clinical interventions for unhealthy alcohol and drug use into rural primary care clinics. Phase 1 aims to define barriers and facilitators to the adoption of substance use screening and clinical decision support in the electronic health record (EHR), and to examine recruitment strategies for rural providers and patients. Methods: A total of nine separate focus groups were conducted with primary care providers, medical assistants (MAs), and patients at three federally-qualified health center (FQHC) clinics in Maine. Recruitment followed the approach of the parent study, which is conducted in large urban areas (advance email for providers and MAs, and same-day waiting room recruitment for patients). The interview guide, based on the Knowledge-to-Action framework, addressed key implementation issues including where screening should occur, who should administer the questionnaires, which substances should be identified, and where to embed this information in the EHR. Results: Sixteen primary care providers, 23 MAs, and four patients participated in separate focus groups. Providers and MAs expressed that substance use screening is valuable to clinical care, and should be integrated into the EHR. To facilitate screening, participants suggested that screening for illicit use be embedded with other substances, be universal, assessed at a patient's annual visit, and be delivered in the context of other health questionnairres. Barriers included the sensitivity of substance use information, stigma, and lack of time. Opinions varied regarding self-administered versus staff-delivered screening as the optimal approach. Conclusion: Participants from rural FQHC clinics identified barriers to substance use screening, but felt it was valuable and feasible if appropriately tailored to clinical workflows. Additional focus groups are needed to capture the attitudes of patients toward screening. Recruitment strategies for patients must account for barriers such as transportation and less experience participating in research.

Financial Support: UG1DA013035, UG1DA040309

First Name: Bethany

Last Name: McLeman

Degrees: MA MD Ph.D etc:: BA

Company Affiliation: Northeast Node of the CTN/Dartmouth College

ID: 293
Heroin and non-medical prescription opioid use trends in young adults by race/ethnicity, education, and psychological distress between 2005-2014

Leila Vaezazizi, Columbia University and NYSPI

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Ethnic Differences

Abstract: Aim: Drug overdose deaths are growing fastest among young adults (18-25 years old) outside of metropolitan areas. Overdose deaths in this demographic increased by 411% between 1999-2015. We examined prescription opioid and heroin use trends among young adults by race/ethnicity, education, and psychological distress. Methods: Using the National Survey on Drug Use and Health from 2005-2014, we examined past-year non-medical prescription opioid (NMPO) use and past-year heroin use among those aged 18-25 by race/ethnicity (non-Hispanic [NH] White, NH Black, Hispanic), education (less than high school [HS] vs. HS or greater), and presence of psychological distress, analyzed using weighted linear regression models for complex survey data. Results: All racial/ethnic groups had either no significant change or a decrease in NMPO use between 2005-2014, except for NH Blacks with less than HS education who had an increase in NMPO use from 5.2% to 12.1% (p Conclusions: The trend observed in NH Whites aged 18-25 from 2005-2014, who have had the greatest decrease in NMPO use but stable heroin use, may be due to the expansion of public health interventions such as educational initiatives, substance use treatment, and prescription drug monitoring programs. NH Blacks with less than HS education, unexpectedly, showed a greater than two-fold prevalence increase in NMPO use, increasing the risk for related morbidity and mortality. Future studies should aim to identify mechanisms for the increased NMPO use among this demographic and whether public health interventions to reduce NMPO use are reaching all populations.

Financial Support: NIDA-NIH grant 1R01DA037866 (Martins) T32DA00729 (Vaezazizi) 4R25DA033211-04 (Vaezazizi) L30DA042436 (Mauro)

First Name: Leila

Last Name: Vaezazizi

Degrees: MA MD Ph.D etc:: MD

Company Affiliation: Columbia University and NYSPI

ID: 294
Combining the WLSMV estimator with multiple imputation for categorical outcomes in substance use disorder randomized clinical trials

Sterling McPherson, Washington State University, Elson S. Floyd College of Medicine

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Treatment

Abstract: Aim: The aim of this study was to compare multiple imputation combined with the mean- and variance-adjusted weighted least squares (WLSMV) estimator, a powerful estimator for categorical outcomes, with two other more commonly used methods of handling missing data (i.e., default WLSMV and positive urine imputation). The former makes often more reasonable assumptions about the nature of missing data, while the latter two have been shown to be associated with substantial bias. Methods: This is a secondary data analysis (NIDA Data Share: https://datashare.nida.nih.gov) of a clinical trial that examined the ability of buprenorphine/naloxone with extended-release naltrexone to reduce the number of cocaine-positive urinalyses (UAs) during the last 4 weeks of an 8-week treatment period, one of the secondary outcomes of the trial. Adults (N=302) with cocaine dependence and a history of opioid dependence or abuse from 11 sites were randomized into three groups: 4 mg/day buprenorphine/naloxone (BUP4); 16 mg/day buprenorphine/naloxone (BUP16); placebo. We used latent growth modeling to analyze the treatment effects on the outcome across the three different missing data methods. Results: Regardless of method, no treatment effects were statistically significant (p 0.98). The default WLSMV method which uses pairwise deletion produced the following treatment effects compared to placebo: BUP4 (Est. = -2.68), BUP16 (Est. = -1.52). The WLSMV combined with multiple imputation method produced the following treatment effects compared to placebo: BUP4 (Est. = -1.79), BUP16 (Est. = 0.73). The positive urine imputation method produced the following treatment effects compared to placebo: BUP4 (Est. = -1.71), BUP16 (Est. = -1.59). Conclusions: Investigators should consider use of the novel WLSMV estimator for categorical outcomes when combined with multiple imputation as a method that may overcome problematic assumptions within other, commonly used methodologies.

Financial Support: Financial Support: National Drug Abuse Treatment Clinical Trials Network Pacific Northwest Node (PI: Donovan; U10DA013714).

First Name: Sterling

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Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Washington State University, Elson S. Floyd College of Medicine

ID: 295
Rationale for combination of XR-naltrexone and bupropion for the treatment of methamphetamine use disorder in the NIDA CTN--0068 ADAPT-2 Trial

Adriane dela Cruz, University of Texas Southwestern Medical Center

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Abstract Category: Program Descriptions

Abstract Detail: Human

Drug Category: Stimulants

Topic: Treatment

Abstract: Aim: To describe the rationale for the combination of extended-release naltrexone (XR-NTX) and extended-release oral bupropion as treatment for moderate or severe methamphetamine use disorder as currently being studied in a large, multisite clinical trial (CTN-0068 ADAPT-2). Methods/Background: The use of combination pharmacotherapy has been demonstrated to improve patient outcomes in a variety of chronic diseases, from hypertension to smoking cessation. The combination of naltrexone and bupropion has received FDA approval for weight management, suggesting the combination attenuates reinforced behaviors. Our open-label pilot study (CTN-0054 ADAPT; N=49) demonstrated a signal suggesting benefit from the combination of XR-NTX and bupropion in decreasing methamphetamine use among patients with DSM-5 severe methamphetamine use disorder. Our ADAPT-2 trial is utilizing a sequential parallel comparison design to test the safety and efficacy of combined XR-NTX and bupropion for decreasing methamphetamine use among adults (age 18-65) with moderate or severe methamphetamine use disorder. Results/Synopsis: Prior research examining the efficacy of naltrexone in the treatment of addictions suggests that this medication, via antagonism of μ-opioid receptors, decreases thoughts about using and cravings to use. In patients with methamphetamine use disorder, naltrexone attenuates the acute reinforcing effects of methamphetamine challenge, and naltrexone has been demonstrated to decrease methamphetamine use. Bupropion has also been demonstrated to decrease the use of abused substances, likely through inhibiting the reuptake of dopamine and norepinephrine. In methamphetamine users, bupropion decreases the acute rewarding and reinforcing properties of a methamphetamine challenge, with data suggesting that bupropion treatment decreases drug use among patients with methamphetamine use disorder. Thus, each medication has been demonstrated to be partially efficacious for decreasing methamphetamine use by attenuating the rewarding and reinforcing effects of methamphetamine. Conclusion: XR-NTX and bupropion may act via complementary, non-overlapping mechanisms to decrease methamphetamine use among patients with methamphetamine use disorder.

Financial Support: National Institute on Drug Abuse of the National Institutes of Health under Award Number UG1DA020024.

First Name: Adriane

Last Name: dela Cruz

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Company Affiliation: University of Texas Southwestern Medical Center

ID: 297
Effect of lofexidine on cardiac repolarization (QTcF) during treatment of opioid withdrawal

Eileen Rodriguez, Curry Rockefeller Group

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Dependence

Abstract: Aim: Lofexidine is currently in clinical development for opioid withdrawal management. This study evaluated its effect on QT interval. Methods: In this placebo-controlled phase 3 study in subjects withdrawing from short-acting opioids, serial ECGs were recorded for 7 days after dosing with lofexidine 2.4 and 3.2 mg/day (0.6 and 0.8 mg QID). Results: In the 'by timepoint' analysis, a small QTcF effect was observed on Day 1, with the largest placebo-corrected mean QTcF (ΔΔQTcF) of 5.4 ms and 6.8 ms after dosing of 2.4 and 3.2 mg/day, respectively. The QT effect did not increase further over the studied duration despite increasing lofexidine plasma concentrations; the largest mean ΔΔQTcF on Day 7 was 6.0 ms and 5.3 ms, respectively. A linear and an Emax exposure-response (ER) model provided an acceptable fit to the data and were used to characterize the relationship between lofexidine plasma concentration and DΔQTcF. The slope of the ER relationship with the linear model with baseline was shallow and not statistically significant (0.37 ms per ng/mL; 90% CI -0.10 to 0.83). For the Emax model with baseline, the initial slope was 0.68 ms per ng/mL (90% CI -1.07 to 2.4), and EC50 was 11.9 ng/mL. The predicted QTcF effect (placebo-adjusted ΔQTcF) was small with both models and an effect exceeding 10 ms, the level of concern, could be excluded across the observed plasma concentration range. Conclusion: ER analysis of ECG/PK data in patients treated for symptoms of opioid withdrawal demonstrated that administration of lofexidine was associated with a small, but not clinically concerning QTcF prolongation on the first day of dosing. This effect did not further increase during 7 days of lofexidine dosing, despite higher plasma concentrations. This observation suggests that other factors may attenuate the small QT effect seen early during treatment in this population.

Financial Support: Supported by US WorldMeds, LLC and National Institute on Drug Abuse grant # U01DA033276.

First Name: Eileen

Last Name: Rodriguez

Company Affiliation: Curry Rockefeller Group

ID: 298
Change talk in group motivational interviewing (GMI) predicts outcome among patients with substance use and co-existing psychiatric disorders

Elizabeth Santa Ana, University of South Carolina

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Treatment

Abstract: AIM: Process evaluation of motivational interviewing in a group format (GMI) is necessary for enhancing facilitation of this underutilized intervention in treatment settings relying on group therapy. Via objective assessment in an RCT comparing GMI vs. treatment-as-usual (TAU), we evaluated the relationship between patient Change Talk (CT) and substance use and treatment engagement outcomes among dually diagnosed patients presenting for treatment in an SUD outpatient treatment program (SATC). Methods: Veterans (n = 118) with current alcohol dependence/abuse and co-existing DSM-IV-TR Axis I disorder were randomized to GMI or TAU. GMI sessions were consistent with the spirit of MI with the goal of eliciting Change Talk (CT). Two raters used the MISC 2.1 (Miller et al, 2008) to code participant CT based on frequency (number of individual patient utterances conveying each CT type) across treatment groups for: 'Desire, Ability, Reason, Need, Commitment and Taking Steps.' GLMM was used to evaluate whether participants in GMI engaged in greater CT compared to those in TAU and to assess whether types of CT mediated primary outcomes at 3-month follow-up. Results: Taking Steps CT predicted reductions in binge drinking days ($p = .003$) and standard drinks consumed ($p = .04$). While Ability CT ($p = .009$) and Reasons CT ($p = .03$) predicted reduced number of illicit drug use days, Need CT predicted increased number of illicit drug use days ($p = .02$). Desire CT ($p = .03$) predicted higher 12-Step session attendance and Ability ($p = .005$) and Reasons CT predicted higher SATC session attendance; although Need CT predicted decreased SATC session attendance. NS associations were found for Commitment CT. Conclusions: GMI therapist MI skills that enhance 'Desire, Ability, Reasons, and Taking Steps CT' were most effective for predicting beneficial outcomes. Until we evaluate Need CT more thoroughly, we suggest caution enhancing this form of CT in GMI.

Financial Support: This study was funded by a VA Clinical Science Research & Development (CSR&D) career development award to PI: Elizabeth J. Santa Ana (CDA-2-016-08S)

First Name: Elizabeth

Last Name: Santa Ana

Degrees: MA MD Ph.D etc:: Ph.D

Company Affiliation: University of South Carolina

Contact Title: Research Psychologist

ID: 299
A stable heroin analog that can serve as a vaccine hapten to induce antibodies that block the effects of heroin and its metabolites in rodents and that cross-react immunologically with related drugs of abuse

Gary Matyas, Walter Reed Army Institute of Research

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: Aims: An effective heroin vaccine needs to induce high levels of antibodies that bind heroin and its metabolites with high affinity. Antibody-bound heroin cannot cross the blood-brain barrier, thereby, blocking the effects of heroin. The aim of this study was to expand upon our previous work with a stable hapten, 6-AmHap, to determine the vaccine efficacy against repeated intravenous (IV) administered heroin challenges. Methods: 6-AmHap was conjugated to tetanus toxoid, bound to aluminum hydroxide, mixed with liposomes containing monophosphoryl lipid A, and rats (n=9) were immunized 4 times. The sera was tested for antibody titer and affinity to heroin, its metabolites and other opioids. Efficacy was assessed by tail immersion (TI) and thermal place preference (TPP) testing following repeated IV heroin challenges every 30 min. Results: Although the experiment is still ongoing, the 6-AmHap vaccine reduced heroin-induced antinociception following repeated IV heroin challenges after the 3rd immunization. The mean heroin dose needed to reach 100% MPE in the TI assay was 5 mg/kg and the TPP assay was 3 mg/kg. Based on previous studies, the efficacy is expected to improve further following the 4th vaccination. The vaccine elicited IgG levels to 6-AmHap of ~1.2 mg/mL. Competition ELISA demonstrated that the antibodies bound heroin and its metabolites, 6-acetylmorphine (6AM), morphine, morphine-3-β-glucuronide and morphine-6-β-glucuronide. Using equilibrium dialysis with UPLC-MS/MS quantification, the Kd values of the antibodies to 6AM and morphine were ≤0.5 nM and the % heroin bound was ≥90. In addition, 6-AmHap antibodies cross-reacted with abused prescription opioids, hydrocodone, hydromorphone, and oxymorphone. Conclusions: 6-AmHap is a promising vaccine candidate that may be developed into a therapeutic for heroin and opioid abuse.

Financial Support: The work of AS, JFGA, AEJ, and KCR was supported by the NIH Intramural Research Programs of the National Institute on Drug Abuse and the National Institute of Alcohol Abuse and Alcoholism, The work of GRM, OBT, RJ, ZB, and CRA was supported through a Cooperative Agreement Award (no. W81XWH-07-2-067) between the Henry M. Jackson Foundation for the Advancement of Military Medicine and the U.S. Army Medical Research and Materiel Command (MRMC). The work was partially supported by an Avant Garde award to GRM from NIDA (NIH grant no. 1DP1DA034787-01).

First Name: Gary

Last Name: Matyas

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Walter Reed Army Institute of Research

ID: 300
Differential associations of marijuana typologies with psychological problems and substance abuse among juvenile detainees

Devin Banks, Indiana University Purdue University Indianapolis

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Adolescent

Abstract: AIM Adolescent marijuana use is associated with increased risk for functional and psychological problems, including cognitive impairment, psychiatric symptoms, and addiction. National data suggests that such consequences are more severe among youth who use marijuana concurrently with other substances (i.e., polysubstance use). Juvenile justice-involved youth have been found to engage in higher rates of both marijuana use and polysubstance use than the general adolescent population. However, to date, no research has examined the differential associations of marijuana polysubstance use (i.e., marijuana and alcohol use, or marijuana, alcohol and other drug use) and marijuana only use with psychological consequences among this high-risk group. Such research may inform intervention programming and have implications for recidivism among this at-risk group of youth. METHODS Participants were 225 juvenile detainees (ages 9-18, 80.4% male, 77.3% non-White) who completed assessments of past year substance use, intellectual functioning, internalizing and externalizing symptomology, and substance use problems; youth were also assessed for substance use disorder. RESULTS Participants fell into one of three substance-use typologies: marijuana and alcohol users made up the largest class, followed by marijuana only, then marijuana, alcohol and other drug users. Results varied somewhat by polysubstance use typology, but polysubstance use was generally associated with lower scores on measures of intellectual functioning, more externalizing and internalizing symptomology, more substance use problems, and a greater likelihood of substance use disorder relative to marijuana only use. CONCLUSION Findings suggest that use of multiple substances is indicative of more problematic substance use. Accordingly, marijuana polysubstance users should be targeted for additional screening and intervention to address psychological problems often comorbid with their substance use. Justice-involved youth engaged in polysubstance use may be at increased need for concurrent academic, affective, and behavioral support in their rehabilitation and transition back to the community.

Financial Support: N/A

First Name: Devin

Last Name: Banks

Degrees: MA MD Ph.D etc:: MS

Company Affiliation: Indiana University Purdue University Indianapolis

ID: 301
Interest in HIV PrEP and medications to treat opioid use disorder at a drug detoxification center

Sabrina Assoumou, Boston University School of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: AIDS/Immune

Abstract: BACKGROUND: HIV pre-exposure prophylaxis (PrEP) prevents HIV transmission in persons who inject drugs (PWID). Medications for Opioid Use Disorders (MOUDs), such as buprenorphine, reduce drug use, overdose (OD), mortality, and HIV risk. Drug detoxification centers serve patients with very recent drug use and may be an attractive venue to expand both PrEP and MOUDs. AIM: We surveyed substance users at a drug detoxification center in Boston regarding their experience with drug OD, and interest in PrEP and MOUDs. METHODS: Individuals admitted to the center between November 2016 – July 2017 (n=200) participated in a randomized trial comparing testing strategies for HIV and hepatitis C virus (HCV); this is a secondary analysis of baseline data. RESULTS: Participants were mean [SD] age, 39 [10] years; 46% White, 25% Black, 21% Hispanic, 7% other. Over the past 6 months, 58% (117/200) injected drugs, 31% (63/200) shared needles, and 87% (149/171) had unprotected sex. Only 20% (39/200) were aware of PrEP, and yet 74% (148/200) were interested in biomedical HIV prevention methods and 71% (141/200) were interested in an injection of HIV medications for prevention. OD was common; 49% (98/200) had been treated for an OD and 49% (98/200) had been prescribed naloxone for prevention. Only 23% (46/200) had been prescribed buprenorphine over the past 6 months, and 33% (51/154) of those who had not been prescribed buprenorphine in this period were interested in this medication. CONCLUSION: Drug detoxification centers serve substance users at high-risk for overdose, HIV and HCV infections. They could be an effective venue for MOUD and PrEP use. Substantial interest in HIV PrEP exists, but knowledge gaps must be addressed. Interest also exists for MOUDs, albeit less so than for PrEP. Drug detoxification centers have great opportunities to address underutilized treatment modalities for high-risk patients.

Financial Support: NIAID 5P30AI042853-18 NIDA P30 DA040500

First Name: Sabrina

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Degrees: MA MD Ph.D etc:: MD MPH

Company Affiliation: Boston University School of Medicine

ID: 302
Association between youth recall of alcohol marketing across venues and underage drinking

Joy Gabrielli, Geisel School of Medicine at Dartmouth

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Alcohol

Topic: Adolescent

Abstract: Aim: Underage alcohol use is a world-wide public health concern. Youth are exposed to alcohol marketing through traditional advertising venues and new media environments. This study explores the scope of adolescent alcohol marketing exposure across venues and tests the independent association between cumulative recalled alcohol marketing exposure and underage drinking. Methods: 202 New England youth, aged 12-17 years (M=14.5; SD=1.48), were recruited from a general pediatrics clinic and completed an online survey. Recall of alcohol marketing across eight venues (e.g., Internet, movies, billboards, magazines) was assessed, along with drinking behavior and relevant covariates (i.e., age, gender, race, parental education level; parent/peer drinking, smoking status, sensation seeking, maternal responsiveness/monitoring, Internet use, social media use, TV use, and parental internet monitoring). Confirmatory factor analysis within structural equation modeling was used to establish a latent construct of alcohol marketing exposure recall. Association between the alcohol marketing construct and youth drinking was tested in a logistic regression, controlling for covariates. Results: Youth reported recall of alcohol marketing exposure from sources across all marketing venues. The latent measurement model of all recalled marketing sources provided excellent fit to the data ($\chi 2$ (17, n =202) =27.402, p = .052, RMSEA(0.000–0.092) = .055, TLI =.960, CFI =.976, SRMR =.037). Adjusted cross-sectional logistic regression analyses demonstrated that this latent alcohol marketing recall construct was significantly associated with underage drinking (AOR = 4.08; 95% C.I. = 1.15, 14.46) accounting for relevant covariates. Conclusions: Youth recalled alcohol marketing across a range of venues. Greater recall of alcohol marketing was significantly associated with underage drinking, while accounting for associated factors such as peer and parent drinking. Industry self-regulation may not adequately address alcohol marketing to youth, particularly within the new media environment where youth are exposed across venues and marketing is less distinguishable from social and entertainment media.

Financial Support: K23AA021154, McClure T32 DA037202, Gabrielli

First Name: Joy

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Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: Geisel School of Medicine at Dartmouth

ID: 303
Gender differences in emotional reactions to cigarette warning labels in teens

Amanda Quisenberry, Ohio State University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Sex Differences

Abstract: Aim: The aim of the analysis was to evaluate the effect of gender on two measures of self-reported emotional responses to varying imagery on cigarette health warning labels in teens. We hypothesized that: 1) high-graphic labels would evoke greater emotional responding and 2) females would report greater emotional reactions to health warning labels. Methods: Two emotional reaction measures, general arousal and reactance, were used to assess the response to nine warning labels among nationally representative teen smokers and teens susceptible to smoking. Participants were randomly assigned to view text-only (n = 171), low-graphic (n = 174), or high-graphic (n = 159) imagery on warning labels over four exposures. Results: Emotional arousal was greater for high-graphic labels [F (2, 496) = 32.037, p = .000], however emotional reactance was no greater for high- or low-graphic labels when compared to text-only labels [F (2, 489) = 0.540, p = .583]. Females [M = 3.42, SEM = .057] displayed greater arousal compared to males [M = 3.19, SEM = .053; F (1, 496) = 8.778, p = .003] and males [M = 2.57, SEM = .057] trended toward greater reactance than females [M = 2.41, SD = .065; F (1, 489) = 3.138, p = .077]. Conclusion: Higher graphic warning labels evoke the greatest emotional response from teens. Gender differences in reactions to cigarette warning labels should be considered in the design and implementation of future pictorial warning labels.

Financial Support: P50CA180908

First Name: Amanda

Last Name: Quisenberry

Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: Ohio State University

ID: 304
Contributions of sexual violence perpetration and victimization to drug and alcohol abuse risk in adolescence: A four-year longitudinal study

Sara Stein, University of Michigan

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Behavior

Abstract: Aims: The purpose of this study was to examine the association between sexual violence (SV) and symptoms consistent with substance abuse. Methods: The longitudinal sample included adolescents from five public middle/high schools in Southeastern Michigan. Panel data came from web-based surveys conducted on an annual basis across a four-year period among 7th - 12th graders. The sample consists of 1,273 boys and 1,430 girls (n=2,703). The independent variables included past-year SV victimization and SV perpetration; the dependent variables were scores on two substance use screening assessments: the DAST-10 (i.e., past-year substance use behaviors) and the CRAFFT (i.e., lifetime alcohol use behaviors). Generalized Estimating Equations (GEE) were used to examine the association between positive DAST-10 and CRAFFT scores and SV victimization/perpetration when controlling for potentially confounding factors. Results: Roughly 49% of respondents indicated SV victimization (38.0% boys versus 58.9% girls) and 18.1% indicated SV perpetration (21.9% boys versus 14.7% girls). Moreover, approximately 14% of respondents (13.1% boys versus 14.9% girls) indicated a positive screen on the DAST-10 and 20.3% (18.0% boys versus 22.3% girls) indicated a positive screen on the CRAFFT. The GEE analyses found that past-year SV victimization had a stronger association with positive scores on the DAST-10 (AOR=2.01, 95% CI=1.63, 2.49) and CRAFFT (AOR=2.07, 95% CI=1.74, 2.45) when compared to SV perpetration (DAST-10, AOR=1.42, 95% CI=1.06, 1.92; CRAFFT, AOR=1.29, 95% CI=1.00, 1.67). When compared to boys, SV victimization among girls had a stronger association with positive scores on both the DAST-10 and CRAFFT during the study period. No sex differences were found between SV perpetration and either substance use. Conclusions: Results indicated an association between SV victimization and positive DAST-10 and CRAFFT scores, an indication of substance abuse in this population, especially among girls compared to boys. Future research should examine the psychosocial mechanisms contributing to this risk relationship.

Financial Support: Supported by: Research supported by NICHD grant 1R03HD087520-01 and NIDA grant R03 DA018272 and R01 DA024678.

First Name: Sara

Last Name: Stein

Degrees: MA MD Ph.D etc:: MS, MSW

Company Affiliation: University of Michigan

ID: 305
A pilot randomized clinical trial of Bupropion Sustained Release as an aid for smoking cessation during pregnancy: Challenges of recruitment and retention of subjects

Valentina Fokina, University of Texas Medical Branch

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Perinatal

Abstract: Background. Adequate strategies in recruitment and retention of subjects in clinical trials are prerequisites for successful outcomes of clinical research. We recently concluded a pilot double-blind placebo controlled clinical trial for the efficacy of bupropion sustained release as an aid for smoking cessation during pregnancy together with behavioral counseling. Aim. The aim of this work was to assess the challenges of recruitment and retention of pregnant women into the clinical trial. Methods. The eligible pregnant women were required to participate in the following 10 clinical visits as follows: First – enrollment, randomization, and study medication dispensation; Second - scheduled quit date; Third to sixth - prenatal therapy progress assessment; Seventh – assessment of 7-day point prevalence smoking abstinence; Eighth to tenth visits – postnatal assessment of abstinence. The study was based on detecting the differences in quit rates between the bupropion and placebo groups as a measure of potential efficacy and a difference in Minnesota Nicotine Withdrawal Scale (MNWS) symptoms. The study was initially powered for three outcomes: quit rates (0.99), cigarette craving (0.99), and total MNWS withdrawal scores (0.90). Results. Mid-way into the study the sample size was decreased from 50 to 30 women per group which resulted in a decrease in power for the outcomes: quit rates, 0.80, cigarette craving, 0.80, and total MNWS withdrawal scores, 0.65. Sixty five subjects were recruited; twenty (30%) remained in the study until the 7th visit (end of pregnancy), and the attrition rate was similar in both groups. Conclusion. Slower than expected enrollment of eligible subjects can be explained in part by the social stigma associated with prenatal smoking and or use of medications. The most effective recruitment method was direct referrals by health-care providers. Fewer prenatal and postnatal visits and/or implementation of home visits should improve subjects' retention in this type of studies.

Financial Support: R01 DA030998

First Name: Valentina

Last Name: Fokina

Degrees: MA MD Ph.D etc:: Ph.D

Company Affiliation: University of Texas Medical Branch

ID: 306
Predicting initiation of vaporized nicotine products, frequency of use and ongoing use among daily smokers in longitudinal data from the International Tobacco Control (ITC) Four Country Survey

Gary Chan, Centre for Youth Substance Abuse Research

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Epidemiology

Abstract: Aim: To examine the longitudinal associations between a range of smoking-related variables and the uptake, frequency of use and ongoing use of vaporized nicotine products (VNPs). Method: Data were from 7 waves of a longitudinal survey over 8 years, with Waves approximately 1.0-2.5 years apart. Participants were daily smokers from UK, US, Canada or Australia. The sample size was 6083 (53% felames; Mage = 52). The outcome variables were uptake of vapourised nicotine products (VNP), frequency of current use, and ongoing use. The key predictor variables were intention to quit, time to first cigarette, cigarettes per day, quitting self-efficacy, worry about adverse health effects, and depressive symptoms. Results: After adjusting for other smoking-related and demographic variables, the number of cigarettes smoked per day was significantly associated with VNP uptake and a higher frequency of current VNP use ($p < .05$). Intention to quit was associated with a higher frequency of current VNP use ($p < .001$). Among daily smokers who reported lifetime VNP use, higher baseline VNP use frequency ($p < .001$) predicted ongoing VNP use. Those who became non-daily smokers by follow-up wave were more likely to continue vaping (OR = 4.99, $p < .001$), but those who quit smoking were less likely to do so (OR = 0.48, $p = .005$). Conclusion: Daily adult smokers' VNP uptake appears to be more likely to take up VNPs the more they smoked, while current frequency of VNP use was also influenced by motivation to quit smoking. The ongoing use of these products appears to be driven by the initial vaping frequency and the extent to which vaping helps them transition out of smoking.

Financial Support: This research is funded by the University of Queensland.

First Name: Gary

Last Name: Chan

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Centre for Youth Substance Abuse Research

ID: 307
Evocative gene-environment correlation underlying aggression and family cohesion in adolescent marijuana use

Kit Elam, Arizona State University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Genetics

Abstract: AIM Emerging literature implicates evocative genotype-environment correlations (rGE), in which children's genetic predispositions evoke systematic reactions from the environment, as one mechanism which can increase risk for adolescent substance use (Elam et al., 2017). This study examines children's genetic predisposition for aggression in evocative rGE with family cohesion in pathways to adolescent marijuana use. We hypothesize that genetic and phenotypic manifestations of aggression will evoke poorer family cohesion, subsequently contributing to greater marijuana use in adolescence. METHODS Participants (n = 426) were 46.4% female, and 65% non-Hispanic Caucasian, 35% Hispanic and were assessed in early adolescence (T1: M age = 11.38, SD = 0.89), a year later (T2: M age = 12.56, SD = 1.12), and in adolescence (T3: M age = 15.85, SD = 1.75). Polygenic risk scores (PRS) were created based on summary statistics from a meta-GWAS on childhood aggression at p RESULTS Children's PRS predicted T1 aggression (B=.11, p=.02) and family cohesion (B=-.12, p=.045), indicative of evocative rGE. Aggression and family cohesion at T1 predicted family cohesion at T2 (B=.33, p.02). Only T1 aggression predicted T2 aggression (B=.59, p=.000). Both family cohesion and aggression at T2 predicted marijuana use at T3 (B=-.14, p=.048, B=.17, p=.049). CONCLUSION Results highlight evocative rGE as underlying familial pathways to adolescent marijuana use. Greater genetic predisposition for aggression can be viewed as initiating a developmental cascade that evokes poor family cohesion, via aggression, that ultimately contributes to greater marijuana use later in life. Intervening in evocative effects on family cohesion could help to prevent substance use in families with aggressive children.

Financial Support: This project was supported by funding from the National Institute on Alcohol Abuse (R21AA022097) as well as funding from The Office of the Director, National Institutes of Health, the National Institute on Drug Abuse and Office of Behavioral and Social Sciences Research (K01DA042828)

First Name: Kit

Last Name: Elam

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Arizona State University

ID: 308
Medical licensing application questions and physician reluctance

Paige Marnell, University of Texas Southwestern Medical Center

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Abstract Category: Theoretical/Commentary

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Treatment

Abstract: Background: We need to protect the public from impaired physicians and state medical licensing boards have done a conscientious job of doing this. However, in an attempt to identify potentially impaired practitioners, medical boards ask seemingly intrusive and often irrelevant questions on their licensing applications. Such questions include those pertaining to lifetime or remote histories of substance use disorders and/or receiving treatment for such conditions. Additionally, questions pertaining to treatment participation, which may deter treatment seeking are unnecessary as the practitioner may not have exhibited professional impairment. Recent studies have shown that these questions result in a reluctance for physicians to seek treatment for problematic substance use. Unfortunately, these physicians then become more likely to experience poor outcomes and suffer increased rates of professional impairment due to not receiving needed treatment. Proposal: To rectify this issue, we suggest uniform medical licensing application questions pertaining only to unsafe practicing behaviors. Furthermore, remote diagnoses are not highly predictive of current impairment. As such, we suggest asking only about reports of professional impairment within the past 12 months. By inquiring only about on the job impairment, this eliminates the pitfalls of introspective judgment by a potentially impaired person and focuses primarily on objective findings. Conclusion: If the medical licensing boards are attempting to identify currently impaired practitioners then they should limit their inquiry to current professional impairment only. Additional questions may serve to deter physicians from seeking help and not improve the identification of currently practicing impaired physicians. These modifications will greatly improve the likelihood that impaired physicians will receive needed treatment and reduce negative outcomes for patients and physicians alike.

Financial Support: None

First Name: Paige

Last Name: Marnell

Degrees: MA MD Ph.D etc:: MD

Company Affiliation: University of Texas Southwestern Medical Center

ID: 309
A pilot randomized clinical trial of cognitive behavioral therapy for opioid use disorder and chronic pain

Declan Barry, Yale University School of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: Aims: To conduct a preliminary evaluation of the efficacy of cognitive-behavioral therapy (CBT) for opioid use disorder and chronic pain. It was hypothesized that compared to standard drug counseling, CBT would be associated with reduced nonmedical opioid use and pain interference. Methods: In a 12-week pilot randomized clinical trial (RCT), 40 patients with opioid use disorder and chronic nonspecific low-back pain enrolled in methadone maintenance treatment (MMT) were assigned to receive manualized CBT (n=21) or Methadone Drug Counseling (MDC) to approximate usual drug counseling (n=19). Primary outcomes were rates of abstinence from baseline to study completion (assessed by weekly urine toxicology testing) and clinically significant reductions in pain interference defined as ≥ 2 points from baseline to end of treatment (assessed by weekly self-report on a 0-10 scale). Results: Patients assigned to CBT exhibited higher rates of abstinence from baseline to study completion than those assigned to MDC [Wald $\chi 2$ (1) = 5.47, p = .019]; time effects (p = .69) and interaction effects between treatment condition and time (p = .10) were not significant. Mean (SD) maximum consecutive weeks of abstinence was higher for patients assigned to CBT compared to MDC: 6.1 (4.2) and 3.9 (3.3), [t (38) =1.831, p=0.034, one-tailed, Cohen's d = 0.59]. Rates of clinically significant change from baseline to end of treatment on pain interference (42.9% vs. 42.1%, [$\chi 2$ (1, N=40)=0.002, p=0.962]) and pain intensity (14.3% vs. 15.8%, [$\chi 2$ (1, N=40)=0.018, p=0.894]) did not differ significantly for patients assigned to CBT or MDC. Conclusion: We found preliminary support for the efficacy of CBT relative to standard drug counseling in promoting abstinence from nonmedical opioid use.

Financial Support: NIDA: K23 DA024050, K24 DA000445, R01DA024695

First Name: Declan

Last Name: Barry

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Yale University School of Medicine

Contact Title: Assistant Professor of Psychiatry

ID: 310
Academic detailing intervention in primary care: Addressing opioid prescribing

Jenna McCauley, Medical University of South Carolina

Abstract Category: Program Descriptions

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Behavior

Abstract: Aim: To examine outcomes of an academic detailing intervention targeting opioid prescribing practices in primary care practice settings. Methods: Academic detailing (AD) visits were conducted with healthcare providers practicing in outpatient primary care practices in a rural southern state. Visits were tailored to the needs of the individual provider; however, core components included: share a patient provider agreement, optimize pain treatment, using a multi-dimensional pain scale, and screen for appropriate opioid use, including effective use of prescription drug monitoring program (pdmp) reports. Visits averaged 54 minutes and live CME was offered. Behavioral intent to run a pdmp report and use a multi-dimensional pain scale to assess chronic pain patients were assessed by the post-visit CME survey. A follow-up survey was administered to providers approximately 6 to 8 weeks after their detailing visit and assessed self-reported changes in prescribing behavior. Results: Of the 91 visits scheduled, 87 visits, 76 CME surveys, and 17 follow-up surveys were completed. Providers self-identified as 42 physicians, 14 physician assistants, 19 nurse practitioners, 12 other providers. A majority of providers reported post-visit intent to run pdmp reports (45; 59%) and to use a pain scale to monitor treatment progress (63; 83%), whereas 30 (39%) and 6 (8%) providers, respectively, reported as behaviors already implemented in their practice. Visits resulted in pdmp registration of 29 providers and 29 delegates. Follow-up results are reported regarding post-visit changes in: (1) use of a patient provider agreement; (2) use of multidimensional pain scale; (3) setting clear treatment goals and realistic expectations about pain management with patients; (4) confidence in running pdmp reports; and, (5) use of pdmp reports to help make clinical decisions. Conclusion: Results indicate providers made notable changes since AD visit, the vast majority reporting more frequent engagement in all practice behaviors on follow-up survey.

Financial Support: CDC 1U17 CE002730 (All Authors); NIDA K23 DA036566 (JLM)

First Name: Jenna

Last Name: McCauley

Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: Medical University of South Carolina

ID: 311
Psychotic disorder and cannabis: Examining hospitalizations trends prior to legalization in Canada

Bridget Hall, Canadian Centre on Substance Abuse

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Epidemiology

Abstract: AIM Hospitalizations due to cannabinoid use have increased in Canada in recent years, however the clinical conditions (e.g., psychotic disorder) behind the increase in hospitalizations have not been assessed. Given the impending changes to the legal status of cannabis in Canada and concerns of an association between cannabinoids (both synthetic and herbal concentrates) increased risk of psychotic disorder, an understanding of the trends in cannabinoid-related hospitalizations by clinical condition is important. The purpose of this research was to examine the clinical conditions responsible for cannabinoid-related hospitalizations and discuss how they may be associated with changes in the illicit cannabis market. METHODS Inpatient hospitalizations due to a primary diagnosis of a mental or behavioural disorder due to cannabis use were assessed over ten fiscal years (2006/07 to 2015/16). Trends were also examined by demographic features, such as age and sex. RESULTS Psychotic disorder accounted for an increasing proportion of all cannabinoid-related hospitalizations, reaching 48% of all hospitalizations in the final year of the study. While the overall number of cannabinoid-related hospitalizations increased by 172%, cannabinoid-related hospitalizations due to psychotic disorder increased by 245%. CONCLUSION This research can inform public health policy development and practice by identifying the clinical conditions most commonly associated with cannabinoid-related hospitalizations, potential explanations for changing trends in cannabinoid-related hospitalizations, and the demographic features most commonly associated with cannabinoid-related hospitalizations. Further research is required to investigate the reasons for this increase (e.g., introduction of high-potency cannabinoid products and synthetic cannabinoids into the illicit market, frequency of cannabis use) among those who are hospitalized for psychotic disorder due to cannabis use.

Financial Support: Health Canada

First Name: Bridget

Last Name: Hall

Degrees: MA MD Ph.D etc:: MPH

Company Affiliation: Canadian Centre on Substance Abuse

ID: 312
A shared parameter pattern-mixture model as a 'missing not at random' sensitivity analysis for substance use disorder randomized clinical trials

Sterling McPherson, Washington State University, Elson S. Floyd College of Medicine

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Treatment

Abstract: Aim: The aim of this study was to compare a standard 'missing at random' methodology (i.e., maximum likelihood) with a novel, shared parameter pattern-mixture model (SPMM) that may be more appropriate when one's data is suspected to be 'missing not at random' (MNAR). Methods: This is a secondary data analysis (NIDA Data Share: https://datashare.nida.nih.gov) of a clinical trial that examined the ability of buprenorphine/naloxone with extended-release naltrexone to reduce the number of cocaine-positive urinalyses (UAs) during the last 4 weeks of an 8-week treatment period, one of the secondary outcomes of the trial. Adults (N=302) with cocaine dependence and a history of opioid dependence or abuse from 11 sites were randomized into three groups: 4 mg/day buprenorphine/naloxone (BUP4); 16 mg/day buprenorphine/naloxone (BUP16); placebo. We used latent growth modeling to analyze the treatment effects on the outcome across the two different missing data methods; one that assumes missing at random and one that assumes missing not at random. Results: Regardless of method, no treatment effects were statistically significant ($p < 0$ .05) compared to placebo. The default maximum likelihood method assumes that the data are missing at random and produced the following treatment effects compared to placebo: BUP4 (Est. = -0.002), BUP16 (Est. = 0.081). The SPMM model, which weighs the treatment effect and other parameters based on the size of the estimated missing data pattern sub-class, produced the following aggregated treatment effects compared to placebo: BUP4 (Est. = -0.007), BUP16 (Est. = 0.102). Conclusions: MNAR models can provide critical sensitivity analyses in order to evaluate the stability of treatment effects. The SPMM model provides a novel tool that will further assist with conducting critical sensitivity analyses in order to determine the bounds of a treatment effect.

Financial Support: National Drug Abuse Treatment Clinical Trials Network Pacific Northwest Node (PI: Donovan; U10DA013714).

First Name: Sterling

Last Name: McPherson

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Washington State University, Elson S. Floyd College of Medicine

ID: 313
Resources and associated costs of implementing pharmacotherapy for opioid dependence initiated in inpatient detoxification settings: Results from a multisite randomized clinical trial

Bruce Schackman, Weill Cornell Medical College

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: AIM To compare the economic cost to providers and patients of outpatient extended release injectable naltrexone (XR-NTX) versus buprenorphine-naloxone (BUP-NX) initiated in inpatient detoxification treatment settings, using data from a 6-month multi-site randomized controlled effectiveness trial. METHODS Eight treatment sites with inpatient detoxification programs participated in the trial. A total of 570 patients were enrolled in the study and randomized to XR-NTX (n=283) or BUP-NX (n=287). Cost data were collected prospectively alongside the trial and during site visits to identify all resource inputs involved in delivering BUP-NX and XR-NTX across three study phases: start-up, inpatient detoxification, and study intervention (induction and medication management follow-up visits). We used microcosting methods to evaluate costs that would be incurred by providers and patients, excluding medication costs and research-related costs. RESULTS The median site startup cost was $879 (range $251-$2,387), primarily for training on medication management and for administrative costs. The mean cost per inpatient detoxification episode was $3,070 for participants randomized to XR-NTX and $2,663 for participants randomized to BUP-NX. Mean length of stay was highly variable across sites (range 3.0-14.5 days). During the intervention phase, the average cost per induction visit for XR-NTX and BUP-NX were similar ($108 and $100, respectively); the average cost per follow-up visit was also similar ($42 and $45, respectively). Average participant time and travel costs were $8 per follow-up visit. Average number of follow-up visits varied by site and arm (XR-NTX: 1.0-2.4; BUP-NX: 7.8-11.8). CONCLUSION Inpatient detoxification represented the majority of costs and was more costly for XR-NTX than BUP-NX; there was wide variation among sites in detoxification length of stay. Costs for each induction and follow-up visit were similar for both treatments, but there were fewer follow-up visits for XR-NTX; the difference varied among sites, which varied in their success in initiating patients on XR-NTX.

Financial Support: NIDA (R01DA035808 and P30DA040500); NIDA CTN (U10DA013046, UG1/U10DA013035, UG1/U10DA013034, U10DA013045, UG1/U10DA013720, UG1/U10DA013732, UG1/U10DA013714, UG1/U10DA015831, U10DA015833, HHSN271201200017C, and HHSN271201500065C); and K24DA022412 (Nunes)

First Name: Bruce

Last Name: Schackman

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Weill Cornell Medical College

ID: 314
Precursors to drug use escalation in a New Hampshire convenience sample of current and recent opioid users

Sarah Moore, Geisel School of Medicine at Dartmouth

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Behavior

Abstract: AIM New Hampshire (NH) is experiencing the highest rate of fentanyl-related overdose deaths per capita in the country. Improving our ability to save lives and optimize treatment for those with opioid use disorder, as well as prevent others from falling prey to this disease, will depend on better characterizing those who are at risk for drug use escalation and potentially overdose. Through this rapid, epidemiological study, we explored current/recent (C/R) opioid users' drug-using practices and perspectives to inform new responses to this health crisis. METHODS Seventy-six C/R opioid users across six counties in NH, recruited via advertisements and word-of-mouth, were interviewed about drug-using practices and perspectives, including precursors deemed pivotal to the escalation of their problematic drug use. Interviews were transcribed, uploaded to Atlas.ti software and content analyzed. RESULTS Seventy percent of C/R opioid users reported an average of three lifetime overdoses. Four precursors were cited as pivotal to users' escalation: early substance experimentation (71%); injury/illness warranting prescribed opioids (67%); self-medication of mental health issues (50%); and family substance abuse (41%). Sixty-two percent referenced one or two precursors, while the remainder referenced three (20%) or four (18%). Women (n=39) were more likely to cite three or four precursors (25% v. 13%), while men (n=37) were more likely to cite one or two (38% v. 23%). CONCLUSION Improved drug prevention and opioid prescribing practices, early mental health screening and treatment, and increased substance use treatment availability are all suggested by these findings.

Financial Support: NIDA U01DA038360-Z0717001 (PI: Wish; Sub PI: Marsch)

First Name: Sarah

Last Name: Moore

Degrees: MA MD Ph.D etc:: Ph.D

Company Affiliation: Geisel School of Medicine at Dartmouth

ID: 315
Crossover associations of alcohol and smoking craving and withdrawal with biochemically-verified alcohol and nicotine use in heavy drinking smokers

Sterling McPherson, Washington State University, Elson S. Floyd College of Medicine

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Tolerance/Dependence

Abstract: Aim: The aim of this secondary data analysis was to examine whether craving and withdrawal for alcohol are associated with biochemically-verified smoking over time, and vice versa (e.g., smoking withdrawal associated with alcohol use) in a sample of non-treatment seeking heavy drinking smokers. Methods: The original study was a contingency management (CM) randomized clinical analog trial: 2 (CM for alcohol versus control) x 2 (CM for smoking tobacco versus control) factorial design, with alcohol (via ethylglucuronide; EtG) and tobacco smoking (via cotinine) as co-primary outcomes across 3 visits per week for 4 weeks. Thirty-five heavy drinking smokers were randomized into 1 of 4 groups wherein they received CM (or equivalent, non-contingent reinforcement) for: neither drug, alcohol abstinence, smoking abstinence, or both. Generalized estimating equations were used to analyze whether craving, withdrawal and concurrent alcohol use was associated with quantitative cotinine over the 4 weeks of the study, and vice versa for quantitative EtG as the outcome. Results: Among the group that received reinforcement for providing non-contingent samples, EtG (B=0.39, p < 0 .05) and baseline cigarette craving (B=206.36, p < 0 .05) were both associated with cotinine levels over time, while baseline alcohol withdrawal and craving were not significantly associated with cotinine. For the outcome of EtG, cotinine (B=0.86, p < 0 .05) and baseline cigarette craving (B=-513.91, p < 0 .05) and alcohol craving (B=189.31, p < 0 .05) were both associated with EtG levels over time, while baseline alcohol withdrawal was not significantly associated with EtG. Conclusions: Data from our trial, the first to our knowledge to examine such relationships with longitudinal biochemical outcomes, support the development of interventions among heavy drinking smokers that account for baseline craving and withdrawal for both substances in order to best optimize treatment approaches. Future studies may consider, for example, higher intensity interventions for a heavy drinker (with a high craving score) entering smoking cessation treatment.

Financial Support: Alcohol and Drug Abuse Research Program award (PI: McPherson), National Drug Abuse Treatment Clinical Trials Network Pacific Northwest Node (PI: Donovan; U10DA013714).

First Name: Sterling

Last Name: McPherson

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Washington State University, Elson S. Floyd College of Medicine

ID: 316
The effect of sex hormones on smoking cessation across the menopausal transition in a 10-year longitudinal sample

MacKenzie Peltier, Yale University School of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Sex Differences

Abstract: Aim: Despite increasing health concerns, many females continue to smoke across the menopausal transition. Little research to date has identified factors that may affect smoking behaviors and cessation efforts in this population. The present study sought to identify the effects of hormones on smoking cessation across the menopausal transition. Methods: Participants included 595 females (M= 50.95 years, SD = 3.93), who endorsed smoking at intake during the 10-year, multi-wave Study of Women's Health Across the Nation. The study annually assessed for changes in smoking status (continued smoking vs. quit smoking), menopausal status (postmenopause, perimenopause and premenopause), and serum measures of testosterone and estradiol. Generalized estimating equations were utilized. Age and study visit year were included as covariates in all analyses. Results: Preliminary analyses demonstrate that across the study period there were no differences in smoking cessation by menopausal status. When examining ranges of hormones, above average and average testosterone levels had increased odds of continuing to smoke when compared to below average levels (OR = 1.49 and 1.25). An above average level of estradiol was associated with increased odds of quitting smoking (OR = 1.88). As the study progressed females were more likely to have quit smoking (OR = 1.14). Interactions between menopausal status and hormones, as well as visit year were not significant. Conclusion: The present study demonstrates that testosterone is associated with continued smoking, while elevated levels of estradiol are associated with cessation across the menopausal transition. These findings begin to elucidate the relationship between hormones and cessation in this population and highlight the need to consider hormonal status when developing novel interventions for this population. Further research is warranted to identify additional factors contributing to cessation as females age.

Financial Support: T32DA007238; P50DA033945

First Name: MacKenzie

Last Name: Peltier

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Yale University School of Medicine

ID: 317
Sex differences among treatment-seeking men and women who use opioids

Tanya Saraiya, Adelphi University & The TRACC Program

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Sex Differences

Abstract: Aim: Limited research has focused on sex differences in treatment-seeking men and women who use opioids (MOU & WOU). This study (1) explored demographic and clinical characteristics of WOU compared to women who use alcohol or other drugs (WAOD), and (2) assessed for differences in these comparisons in men. Methods: Participants (N=507) were from a multisite, randomized controlled trial of an Internet-delivered psychosocial intervention. Logistic regression models explored differences in baseline characteristics by substance use category (OU vs AOD) within women and men subgroups; interactions of characteristics and sex explored differences in OU vs AOD patterns by sex. Results: WOU, compared to WAOD, were younger, White, less unemployed, less likely to have children at home, and less likely to use or have a marijuana use disorder. Significant differences by sex and OU status were detected on three variables: WOU and WAOD met diagnostic criteria at similar ages (WOU: M=22.7; WAOD: M=22.0), while males using opioids (MOU) met diagnostic criteria at a significantly younger age compared to MAOD (MOU: M=19.7; MAOD: M=23.5) ($X2(1)=7.92$, $p=.005$). WOU (57.6%) were less likely to be unemployed compared to WAOD (77.8%), while MOU (53.3%) and MAOD (50.7%) were similar ($X2(1)=6.69$, $p=.01$). No differences in criminal justice involvement were detected among women, while MOU (13.3%) had less involvement in the criminal justice system than MAOD (29.2%) ($X2(1)=4.95$, $p=.03$). Conclusion: Differences among WOU and WAOD were found on demographics and substances used; differences between substance use categories by sex were significant (unemployment, criminal justice, and age of first abuse/dependence). Tailoring treatment for the unique needs of both men and women who use opioids is warranted given the ongoing opioid epidemic.

Financial Support: Support: NIDA UG1 DA013035, R25 DA035161

First Name: Tanya

Last Name: Saraiya

Degrees: MA MD Ph.D etc:: M.A.

Company Affiliation: Adelphi University & The TRACC Program

ID: 318
Quantifying G-protein and arrestin bias for structurally diverse KOR ligands

Jose Erazo, The Rockefeller University

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Opiates/Opioids

Topic: Chemistry

Abstract: AIM The kappa opioid receptor (KOR), a G-protein coupled receptor, is a potential therapeutic target in the treatment of psychostimulant addiction. Many recently characterized KOR ligands have been shown to differentially activate select intracellular signaling pathways, namely G-protein mediated pathways versus β-arrestin mediated pathways. This signaling bias could be therapeutically useful. The bias profiles of many KOR ligands, however, remain insufficiently characterized. We have quantified the bias of several, structurally-diverse KOR ligands, including recently described compounds. METHODS KOR ligands were tested using the GTPγS assay for G-protein activity and an arrestin-recruitment assay using a commercially available U2OS cell line expressing human KOR. For agonists with very low efficacy, we also tested the ligand as an antagonist, with U69,593 as the reference agonist. Ligand bias comparing G-protein and arrestin signaling was quantified using a derivation by Kenakin (2012) of the operational model originally developed by Black and Leff (1983). The antagonist data was analyzed using the "competitive model" modification recently described by Stahl et al (2015), which more accurately models bias for ligands with very low efficacy. RESULTS Ligand bias was calculated for U50,488, dynorphin A (1-17), salvinorin A, mesyl-sal B, nalfurafine, naltrexone, nalmefene, as well as select derivatives of recently characterized KOR selective scaffolds. All compounds were compared to the full, unbiased KOR agonist, U69,593. Nalmefene and naltrexone, as well as derivatives of N-substituted diphenethylamine and pyrrolidinylquinoxaline, had varying degrees of bias for G-protein signaling over arrestin signaling. On the other hand U50,488, dynorphin A, salvinorin A, mesyl-sal B, and nalfurafine, were found to be relatively unbiased. CONCLUSION It is important that bias be described and quantified systematically as additional KOR ligands are investigated. This will enable us to better understand connections between ligand bias and in vivo effects, which will inform therapeutic development.

Financial Support: These studies were supported by the Robertson Therapeutic Discovery Fund and the Dr. Miriam and Sheldon G. Adelson Research Foundation.

First Name: Jose

Last Name: Erazo

Company Affiliation: The Rockefeller University

ID: 319
Differences between misusers of buprenorphine and other prescription opioids

Howard Chilcoat, Indivior Inc.

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: AIM: Although buprenorphine is an efficacious medication for the treatment of opioid use disorder, its abuse, misuse and diversion remains an important concern. Because of differences in the pharmacologic properties of buprenorphine relative to other opioids, it is useful to understand whether the characteristics of buprenorphine misusers differ from those who misuse other prescription opioids. METHODS: Data from the 2015 National Survey on Drug Use and Health (NSDUH) were used to compare illicit drug use and demographic characteristics of misusers of buprenorphine versus other prescription opioids in the United States. Misusers of prescription opioids in the past year were divided into 2 mutually exclusive groups: those who misused buprenorphine at least once (n=218) and those who misused other prescription opioids (OPO; n=2994). Results were based on weighted estimates. RESULTS: Buprenorphine misusers were 3 times more likely to have past-year illicit drug use disorder (75%) than OPO misusers (26%). One-third (33%) of buprenorphine misusers had past-year heroin use disorder and half (52%) had past year prescription opioid use disorder versus 2% and 14% of misusers of OPO, respectively. Buprenorphine misusers were 3-4 times more likely to have a disorder due to other psychotherapeutic medications (tranquilizers, stimulants, and sedatives) and nearly 6 times more likely to have injected drugs (45% versus 8%) than OPO misusers, but the groups had smaller differences in marijuana and alcohol use disorders. Buprenorphine misusers were also more likely to be white, middle-aged and male than OPO misusers. CONCLUSION: Individuals who misuse buprenorphine were more likely than those who misuse OPOs to have current drug use disorders, particularly opioid use disorder and other psychotherapeutic medication use disorders. These findings suggest that buprenorphine misusers have a higher level of problematic use of opioids and other drugs and points to a need for increased understanding for reasons for buprenorphine misuse.

Financial Support: Support for this research was provided by Indivior Inc.

First Name: Howard

Last Name: Chilcoat

Degrees: MA MD Ph.D etc:: Sc.D.

Company Affiliation: Indivior Inc.

Contact Title: Head, Epidemiology

ID: 320
A case series exploring the effect of twenty sessions of repetitive transcranial magnetic stimulation (rTMS) on cannabis use and craving

Gregory Sahlem, Medical University of South Carolina

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Treatment

Abstract: Aims: Repetitive transcranial magnetic stimulation (rTMS) uses a focal pulsed magnetic wave to regulate cortical to subcortical circuits. Preliminary evidence suggests that rTMS may exert an anti-craving effect in substance use disorders, however, previously there have been no studies exploring the utility of rTMS in the treatment of cannabis use disorder (CUD). Methods: Three treatment seeking participants with moderate or severe CUD (26yoM, 48yoF, 41yoM), underwent a course of 20 treatments of open-label rTMS (Figure of eight coil, L-DLPFC, 10Hz, 4000 pulses/treatment), delivered over two weeks (two treatments/day). Participants additionally underwent two-sessions of Motivational Enhancement Therapy (MET). Physical and olfactory cues were presented during treatments. Craving was measured using the Marijuana Craving Questionnaire (MCQ). Use outcomes were recorded using the Time Line Follow-back (TLFB). Results: Spontaneous craving decreased numerically in all three participants (mean MCQ decreased from 33.1±7.3SD prior to the first treatment to 24.1±6.2SD prior to treatment on the final treatment day). There was also a numerical decrease in cue-elicited craving at the end of the final treatment visit (19.1±6.1SD) compared to following the first treatment visit (22.9±5.8). Self-reported use similarly decreased throughout the two weeks of treatment in each participant from 31.7±15.1 times used per week at baseline, to 18.3±12.7, and 16.3±11.5 times used per week, in the two weeks of treatment respectively. Self-reported use continued to decrease to 17.0±13.5SD, 17.7±12.3SD, 15.3±12.1SD, and 15.3±12.1SD times used per week respectively in the four weeks of follow-up. Conclusions: Three participants receiving open-label rTMS concurrently with MET appeared to have reductions in both craving and cannabis use; interpretation of this case series is limited though as statistical tests were not performed due to the small sample size. Further study utilizing a randomized, sham-controlled design, in a larger cohort of participants is needed in order to determine if rTMS is an effective treatment for CUD.

Financial Support: 1K23DA043628-01, K12 DA031794

First Name: Gregory

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Degrees: MA MD Ph.D etc:: MD

Company Affiliation: Medical University of South Carolina

ID: 321
Vaporization of marijuana among recreational users: A qualitative study

Elizabeth Aston, Center for Alcohol and Addiction Studies

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Behavior

Abstract: Aim: Vaporization of marijuana, or "vaping," has become a prevalent mode of marijuana administration and is typically perceived to hold unique benefits compared to combustible administration methods. Such positive beliefs regarding marijuana vaporization may contribute to its abuse liability. This qualitative study examined cognitions pertaining to vaping among recreational marijuana users. Methods: Focus groups were conducted with frequent recreational marijuana users (total N = 31; 6-7 per group; M = 5.0 days/week marijuana use). Three topic areas were queried during focus group discussions, with the goal of revealing factors that may contribute to the abuse liability of vaporizing marijuana. These included differences between smoking and vaporizing marijuana, perceived advantages of vaporizing marijuana, and perceived disadvantages of vaporizing marijuana. Focus groups lasted approximately 60 minutes, and followed a semi-structured agenda; they were audio recorded and transcribed for an applied thematic analysis. An executive summary of each group was made and key themes pertaining to vaporization were summarized. Results: Several themes emerged including differences between smoking and vaporizing marijuana, convenience, discretion and efficiency of vaping, perceived health benefits, the absence of traditional smoking rituals, and the high cost of vaporization devices. Conclusion: Several factors appear to promote marijuana vaporization, including device aspects (e.g., discrete, convenient), the subjective high, economical efficiency, and perceived harm-reducing and health-promoting effects. These qualitative data highlight unique cognitions or marijuana vaping. Quantitative research is needed to examine the extent to which cognitions about marijuana vaporization contribute to actual use patterns.

Financial Support: Financial Support: K01DA039311 (Aston), T32HL076134 (Farris), R01AA024091 (Metrik), and K24HD062645 (Guthrie).

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Company Affiliation: Center for Alcohol and Addiction Studies

ID: 322
The effects of stress and impulsivity on treatment retention and outcomes among Black and White cocaine users

Angela Haeny, Yale University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Stimulants

Topic: Ethnic Differences

Abstract: AIM: Prior research suggests elevated levels of both stress and impulsivity are associated with poor drug treatment outcomes. However, no study has tested differences across race/ethnicity, so it is not evident whether this relation exists for Black drug users as well. The aim of this study was to investigate whether stress and impulsivity were associated with treatment retention and outcomes, and whether the effects differed between Black and White cocaine users. METHOD: Participants (N = 178, 55 Black, 46% female, Mage = 40, SDage = 9.65) were drawn from data pooled across two treatment studies that used the Perceived Stress Scale (PSS) and the Barrett Impulsiveness Scale (BIS), which consists of the nonplanning, motor, and cognitive impulsivity subscales. Multivariate analysis of variance was used to investigate the effects of stress and impulsivity on treatment retention and outcomes by race. RESULTS: White participants had higher pretreatment scores on the PSS ($F(1, 175) = 13.35$, $p < .001$), BIS-nonplanning ($F(1, 177) = 6.94$, $p = .01$), BIS-motor ($F(1, 177) = 8.54$, $p < .001$) and the BIS-cognition ($F(1, 177) = 4.00$, $p = .05$) compared to Black participants. Treatment completers reported lower levels of perceived stress at baseline compared to non-completers ($M = 17.43$, $SD = 5.74$ vs. $M = 20.29$, $SD = 6.25$, $F(1, 175) = 8.01$, $p = .01$) regardless of race. Significant interaction effects were found between pretreatment PSS and BIS subscale scores on days of cocaine abstinence and percent positive urine screens during treatment; however, these effects did not vary by race. CONCLUSION: The findings from this study indicate that White cocaine users tend to report higher levels of stress and impulsivity than Black cocaine users. In addition, treatment seekers with high pretreatment stress ratings should be targeted regardless of race to decrease risk of treatment dropout.

Financial Support: Supported by NIDA grants P50 DA009241 and R01 DA030369-04S1 to Kathleen Carroll and R21 DA041661 to Brian Kiluk

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Last Name: Haeny

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Yale University

ID: 323
Effects of reduced drug use on HIV outcomes in primary care patients

Efrat Aharonovich, Columbia University Medical Center

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Stimulants

Topic: AIDS/Immune

Abstract: AIM Drug use is a robust predictor of low antiretroviral treatment (ART) adherence, lack of viral suppression and rapid HIV progression. Studies suggest that drug use interventions can improve HIV outcomes. In a secondary analysis of data from a randomized trial comparing "HealthCall", a technology-based intervention to other brief interventions to reduce non-injection drug use (NIDU) among HIV-infected patients in HIV clinics, we examined improvement in HIV outcomes. METHODS HIV+NIDU users (N=217) were recruited from large urban HIV clinics (70.5% with cocaine/crack as their primary drug) and assigned to brief motivational interviewing (MI), MI+HealthCall or educational control; all had brief (~10-15 min) booster sessions at 30 and 60 days. Drug use (DU) was assessed with TimeLineFollowBack (TLFB; past 30 days). ART adherence, past 30 days, was assessed with a visual analogue scale (1= perfect adherence; 5=none taken). Viral load (VL) came from medical records (suppression=≤200 copies/mL). DU, adherence and VL were assessed at baseline, 60-days (except VL), 6-and 12 months. 12-month retention (74%) was not associated with baseline viral load. Results were analyzed with GEE models. RESULTS Sample mean age was 46.5 years, 83.4% male, 66.8% African-American, 12.4% had HS education or the equivalent. Reduction in DU was significant from baseline to end of treatment (EoT) and at 6- and 12 months (pCONCLUSION Participants receiving brief interventions reduced their DU, improved ART adherence, and improved their likelihood of being virally suppressed one year later. These results underscore the importance of even brief interventions for DU to improve survival and outcome among those in HIV care.

Financial Support: R01DA024606

First Name: Efrat

Last Name: Aharonovich

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Columbia University Medical Center

Contact Title: Assistant Professor

ID: 324
Has alternative tobacco product use influenced future cigarette smoking intention differently in male and female adolescents from 2011 to 2015?

Luis Segura, Columbia University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Epidemiology

Abstract: Aims: Among cigarette-naïve adolescents, research has shown a positive effect between using alternative tobacco products (ATP) and intention to initiate cigarette smoking. Paradoxically, the use of ATP among adolescents has increased and cigarette smoking has decreased in the past years. Assuming that ATP causes intention to cigarette smoking (ICS), we tested whether increasing ATP use results in increasing ICS over time. Methods: We analyzed 71,101 cigarette-naïve students aged 9-19 from the 2011–2015 U.S. National Youth Tobacco Survey. Binary indicator of current ATP use included any past-month use of e-cigarette, hookah, pipe, cigars, and smokeless tobacco. We used weighted logistic regressions including time as fixed effects and lsmeans to predict the prevalence over time of: 1) ATP use, 2) intention to smoke cigarettes, 3) intention to smoke cigarettes given ATP use, and 4) intention to smoke cigarettes given ATP use differentiated by sex. Results: ATP use increased from 2.87% [2.36–3.50] in 2011 to 6.24% [5.62%–6.93%] in 2015 (p-trend < 0 .05). Prevalence of ICS declined from 1.70% [1.39%–2.08%] in 2011 to 0.88% [0.70%–1.09%] in 2013 (p-trend < 0 .05), and remained stable until 2015. The likelihood of ICS was consistently higher in ATP users than non-users at each year, and the prevalence of ICS among ATP users did not change between 2011–2015. Gender-specific findings indicated a decrease in the prevalence of ICS among males using ATP contrasting and a slight increase in ICS among females ATP users. Discussion: Contrary to expectations, we found no increasing trend in ICS among cigarette-naïve ATP users despite an increasing trend in ATP, and an increased likelihood of ICS in each survey year given ATP use. The prevalence of the ICS remained stable over time. Our findings might be explained by the social dynamics of drug use associated with sex differences.

Financial Support: CONACYT and Colciencias doctoral scholarships, and R01DA037866.

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Degrees: MA MD Ph.D etc:: MD, MPH

Company Affiliation: Columbia University

ID: 325
Negative urgency mediates the relationship between depression and marijuana problems

Rachel Gunn, Brown University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Other

Abstract: Aim: To better understand mechanisms underlying associations between Major Depressive Disorder (MDD) and marijuana use and problems. Specifically, it was hypothesized that negative urgency (NU), the tendency to act rashly while experiencing negative mood states, would uniquely (compared to other impulsivity traits: positive urgency, sensation seeking, premeditation, and perseverance) mediate the relationship between MDD and marijuana use and problems. Methods: Data were collected from a sample (N=357) of veterans (M age=33.63) recruited from a Veterans Affairs hospital who used marijuana at least once in their lifetime. Participants completed the SCID-NP to assess MDD, a marijuana problems scale, a Time-Line Follow-back to assess six-month marijuana use, and the UPPS-P Impulsive Behavior Scale for impulsivity. Results: Path analysis was conducted using bootstrapped (k = 20,000) and bias-corrected 95% confidence intervals (CIs) to estimate mediation (indirect) effects, controlling for age, sex, and race. There was a significant direct effect of MDD on NU (β = .29, p< .001, 95% CI [.19-.39]) and NU on marijuana problems (β = .15, p = .02, 95% CI [.02-.27]). There was a significant indirect effect of MDD on marijuana problems (β = .05, p = .02, 95% CI [.01-.09]), via NU. The direct effect of MDD on marijuana problems was reduced, but remained significant (β = .17, p = .04), suggesting partial mediation. No other impulsivity scales mediated the relationship between MDD and marijuana problems. In predicting marijuana use, there were no significant indirect effects for any impulsivity traits, including NU, despite significant bivariate associations between use and NU (r=.17, p
Financial Support: Research Support from: R01 DA033425 (PIs Metrik, Borsari) and T32 AA007459 (Gunn)

First Name: Rachel

Last Name: Gunn

Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: Brown University

ID: 326
Comparative effectiveness of extended-release naltrexone versus buprenorphine-naloxone for opioid relapse prevention (X:BOT): A multicenter, open-label, randomized controlled trial

Patricia Novo, New York University School of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: Aims: Extended-release naltrexone (XR-NTX), an opioid antagonist, and buprenorphine-naloxone (BUP-NX), a partial opioid agonist, are pharmacologically and conceptually distinct opioid relapse prevention interventions. We aimed to estimate the difference in opioid relapse-free survival between XR-NTX and BUP-NX. Methods: We initiated this 24 week comparative effectiveness trial at eight community-based inpatient programs and followed participants as outpatients. Participants were 18 years or older, had DSM-5 opioid-use disorder, and non-prescribed opioid use in the past 30 days. Participants were stratified by site and opioid-use severity and randomized (1:1) to receive XR-NTX or BUP-NX. Primary outcome was opioid relapse-free survival (relapse was 4 consecutive weeks of non-study opioid use by urine toxicology or self-report, or 7 consecutive days by self-report). Results: 570 participants were randomly assigned to receive XR-NTX (n=283) or BUP-NX (n=287). As expected, XR-NTX had a substantial induction hurdle: fewer initiated XR-NTX (72%) than BUP-NX (94%). Among the intent-to-treat (ITT) population (n=570) 24-week relapse events were greater for XR-NTX (65%) than for BUP-NX (57%); most of this difference accounted for by early relapse in nearly all (89%) XR-NTX induction failures. Among participants successfully inducted (per-protocol population, n=474), 24-week relapse events were similar across arms. Opioid-negative urines and opioid-abstinent days favored BUP-NX among the ITT population, but were similar across arms among the per-protocol population. Opioid craving was initially less with XR-NTX than BUP-NX, converging by week-24. Except for XR-NTX injection site reactions, treatment-emergent adverse events did not differ between treatment groups. Five fatal overdoses occurred (two in the XR-NTX group, three in the BUP-NX group). Conclusions: In this population it is more difficult to initiate patients to XR-NTX than BUP-NX, which negatively affected overall relapse. Once initiated, both medications were equally safe and effective. Future work should focus on facilitating induction to XR-NTX and on improving treatment retention for both medications. ClinicalTrials.gov: NCT02032433

Financial Support: Funding: NIDA Clinical Trials Network - HHSN271201500065C (CCC), HHSN271201200017C (DSC), and U10DA013046, UG1/U10DA013035, UG1/U10DA013034, U10DA013045, UG1/U10DA013720, UG1/U10DA013732, UG1/U10DA013714, UG1/U10DA015831, U10DA015833.

First Name: Patricia

Last Name: Novo

Degrees: MA MD Ph.D etc:: MPA, MPH

Company Affiliation: New York University School of Medicine

ID: 327
Human kappa opioid receptor (KOP-r) partial agonist nalmefene and agonist nalfurafine reduce excessive and “relapse” alcohol drinking in C57BL/6J mice

Yan Zhou, The Rockefeller University

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Alcohol

Topic: Treatment

Abstract: Authors: Y Zhou, MJ Kreek; Institutions: Rockefeller University, NY Aim: Nalmefene, a KOP-r partial agonist and mu opioid receptor antagonist, is approved in Europe for reducing alcohol consumption in alcohol dependent patients. Although nalfurafine is the first clinically approved KOP-r agonist in Japan as an anti-itch drug without serious side effects, no study has been published using nalfurafine on alcohol drinking in rodents or humans. We investigated whether nalmefene or nalfurafine altered excessive alcohol drinking in mice. Methods: Both male and female C57BL/6J mice, subjected to a chronic intermittent access drinking paradigm (two-bottle choice, 24-h access every other day) for 3 weeks, developed excessive alcohol intake and displayed alcohol deprivation effect (ADE) after 1-week abstinence. Alcohol consumption and preference were tested after chronic intermittent access drinking or ADE with single acute pretreatment of nalmefene (0.125, 0.25 or 0.5 mg/kg), nalfurafine (3, 10 or 30 ug/kg) or KOP-r antagonist nor-BNI (1 or 5 mg/kg). Pharmacological effects of the 3 compounds were also evaluated using the drinking-in-the-dark (DID) model with limited access (4 h/day). Sucrose and saccharin drinking were used as controls for alcohol-specific drug effect. Results: (1) Nalmefene dose-dependently reduced excessive intake and alcohol preference after intermittent access drinking, and prevented the ADE in both sexes. However, nalmefene had no effect after DID. The effect of nalmefene was specific to alcohol, as shown by the lack of the effect on sucrose or saccharin drinking; (2) Nalfurafine dose-dependently reduced excessive intake after intermittent access drinking in both sexes; (3) In contrast, nor-BNI had a slight, but not significant, reducing effect on drinking after either intermittent access drinking or ADE; and (4) Plasma corticosterone levels were decreased after intermittent access drinking in both sexes. Conclusion: Nalmefene and nalfurafine reduced excessive alcohol drinking or “relapse” drinking in mice, suggesting potentials in alcoholism treatments.

Financial Support: NIH AA021970, Robertson Therapeutic Discover Fund, Dr. Miriam and Sheldon G. Adelson Medical Research Foundation, and NIDA Division of Drug Supply and Analytical Services

First Name: Yan

Last Name: Zhou

Company Affiliation: The Rockefeller University

ID: 328
Estimating the proportion of crimes caused by alcohol and other drugs in Canada, 2007- 2014

Matthew Young, Canadian Centre on Substance Use and Addiction

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Epidemiology

Abstract: AIM: In 2002, Pernanen, Cousineau, Brochu, and Sun developed a methodology and conceptual framework for estimating the association between the use of substances and crime and developed attributable fractions (AFs) that could be used to estimate the proportion of crimes caused by alcohol, and illicit drugs. Building upon this methodology, new crime-related AFs for alcohol, cannabis, opioids, cocaine, amphetamines and other stimulants, CNS depressants, and other drugs were calculated based upon more recent and relevant data held by the Correctional Service of Canada. METHODS: Canadian men and women offenders (n = 29, 138) who were incarcerated in federal prisons in Canada between 2006 and 2016 completed questionnaires (upon beginning their sentence) assessing: (1) whether they felt the offence for which they were convicted would have occurred had they not been drinking alcohol or under the influence of other drugs at the time of their offence; (2) whether they committed the offence to support their drinking or drug use; and (3) whether they were dependent on alcohol or other drugs. RESULTS: Approximately 20% of all violent crimes and 8% of other crimes in Canada between 2006 and 2016 were caused by alcohol. In contrast, all other psychoactive drugs combined (i.e., cannabis, opioids, cocaine, amphetamines, CNS depressants, and other drugs) caused approximately 26% of all violent crime and 25% of other crimes in Canada during the same timeframe. CONCLUSION: Given the contribution of alcohol compared to illicit drugs in causing violent and non-violent crime, these results have important implications for those working in public safety. These implications as well as use of these AFs in economic burden studies as well as deviations from other estimates will be discussed.

Financial Support: Health Canada

First Name: Matthew

Last Name: Young

Company Affiliation: Canadian Centre on Substance Use and Addiction

ID: 329
The economic impact of jail-based medication-assisted treatment: A cost-effectiveness analysis of a large jail-based methadone maintenance treatment program in New Mexico

Brady Horn, University of New Mexico

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: AIMS: The US has the highest incarceration rate in the world and spends a tremendous amount of money housing inmates. The clinical literature increasingly suggests that methadone maintenance treatment (MMT) is an effective method to treat heroin addiction, and jails are a unique and potentially valuable environment to implement this type of treatment. However, currently MMT treatment in jails is rarely implemented in practice. The purpose of this study was to evaluate the economic impact of jail-based MMT using data from a unique jail-based MMT program located at the Metropolitan Detention Center (MDC) of Bernalillo County, NM. METHODS: Data was collected for a cohort of inmates that received MMT and numerous quasi-control groups within the jail: an opioid detoxification group, an alcohol detoxification group, and a general population group. Recidivism data was collected both three years before the incarceration event and after the incarceration event. Cost-effective analysis was implemented using changes in recidivism as the outcome of interest and cost estimates generated using the DATCAP survey instrument. RESULTS: Preliminary estimates suggest that inmates enrolled in the MDC MMT program exhibited less recidivism days than each control group and that the intervention is cost-effective. The MDC MMT group exhibited 41.66 ($p < .01$) fewer recidivism days than the opioid detoxification group, 50.34 ($p < .01$) fewer recidivism days than the alcohol group, and 6.96 ($p < .67$) fewer recidivism days than the general population group. Cost-effective results comparing the MDC MMT group with the opioid detoxification group suggest that it cost $16.53 to reduce a recidivism day, which is considerably less than daily per-patient incarceration costs. CONCLUSION: Results suggest that jail-based MMT may be a cost-effective mechanism that can be used to reduce recidivism. While further analysis is needed, policy makers should consider implementing MMT in other incarceration systems.

Financial Support: Financial support for this article was provided by the, National Institute on Drug Abuse (R21 DA040819 02)

First Name: Brady

Last Name: Horn

Degrees: MA MD Ph.D etc:: Ph.D

Company Affiliation: University of New Mexico

ID: 330
Nicotine effects on white matter microstructure in male and female young adults

Megan Kangiser, University of Wisconsin-Milwaukee

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Imaging

Abstract: Aim: In 2016, 23.5% of 18-25 year olds reported past month cigarette use. Studies examining the effects of nicotine use on white matter in young adults generally find increased fractional anisotropy (FA) and decreased mean diffusivity (MD), while effects are less consistent in adults. Research shows that male adolescents have higher FA, decreased MD, and greater white matter growth than female adolescents. No studies have examined the effect of chronic nicotine use and gender on white matter microstructure in young adults. Methods: Fifty-seven participants (21 nicotine users [52.4% female] and 36 controls [47.2% female]) aged 18-25 completed one session with an MRI, neuropsychological battery, drug use interview, questionnaires, and toxicology/pregnancy testing. FA, MD, axial diffusivity (AD), and radial diffusivity (RD) were extracted using TRACULA. A series of multiple regressions was conducted to examine whether gender moderated the effects of chronic nicotine use on the diffusion variables in fronto-parietal and fronto-temporal white matter tracts, controlling for gender and past year alcohol use. Results: The gender x nicotine group interaction did not predict any white matter differences. Nicotine users exhibited increased AD in the forceps minor; increased RD in the left inferior longitudinal fasiculus and left uncinate fasiculus; increased MD in the forceps minor and left uncinate fasiculus; and decreased FA in the left inferior longitudinal fasiculus and left superior longitudinal fasiculus temporal bundle. Conclusion: Inconsistent with previous research in young adults, nicotine use predicted reduced white matter integrity in various fronto-parietal, fronto-temporal, and temporo-occipital white matter tracts in both males and females. Future studies should examine longitudinal effects of nicotine use and gender in a larger sample.

Financial Support: Supported by: NIDA R03 DA027457 (PI: Lisdahl)

First Name: Megan

Last Name: Kangiser

Company Affiliation: University of Wisconsin-Milwaukee

ID: 331
Association between negative affect and symptoms of anxiety and depression in a cannabis cessation clinical trial.

Brian Sherman, Medical University of South Carolina

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Treatment

Abstract: Aims: Treatment interventions may target specific components of withdrawal symptomology. Negative affect is an important component of cannabis withdrawal, yet to date, no factor analyses have been conducted on scales measuring withdrawal from cannabis. Aim 1 – To identify items from the Cannabis Withdrawal Scale (CWS) that correlate with negative affect symptomology (NA). Aim 2 – To assess the correlation between the resulting NA score and the Hospital Anxiety Depression (HAD) subscale scores during a cannabis cessation clinical trial. Methods: Using 411 participants screened for inclusion into the Achieving Cannabis Cessation: Evaluating N-Acetylcysteine Treatment (ACCENT) study, exploratory factor analysis was implemented to identify items within the CWS that represent aspects of NA. Following promax rotation, four of the nineteen CWS items loaded together as the primary NA factor; “I had some angry outbursts”, “I had mood swings”, “I felt depressed” and “I was easily irritated” (Factor loadings: 0.64-0.95). Composite scores for the factor were created based on the study screening information and applied to the 302 participants randomized into the study at baseline, as well as at treatment weeks 4, 8 and 12. NA and HAD scores were standardized to 1 SD and generalized linear mixed effects models were developed to assess the relationship between changes in the NA factor score with changes in the corresponding HAD subscale scores over the course of the study. Results: Changes in NA were positively associated with changes in both HAD subscale scores [p 0.15). Conclusions: The CWS provides a possible measure of cannabis withdrawal-related negative affect. Future research on the association between NA, cannabis use, and cannabis outcomes is warranted.

Financial Support: UG3DA043231 (McRae-Clark, Gray) UG1DA013727-CTN0053 (Gray)

First Name: Brian

Last Name: Sherman

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Medical University of South Carolina

ID: 332
Promoting substitution of e-cigarettes for cigarettes through narratives: The Roles of authority and in-group biases in modulating narrative effectiveness

William DeHart, Virginia Tech Carilion Research Institute

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Behavior

Abstract: Due to its high societal costs, methods of reducing or eliminating cigarette smoking are of great importance. Though the goal of the majority of interventions is cessation, interest in harm-reduction methods that reduce the overall harm of nicotine use is growing. Substituting electronic cigarettes for tobacco cigarettes is an increasingly discussed harm-reduction method both in research and practice. Personalized narratives may be one effective method of encouraging substitution of e-cigarettes. The behavioral economic process of demand provides a framework for investigating the efficacy of personalized narratives to increase e-cigarette substitution. In this study, participants (N = 120) read one of four narratives that described an individual becoming ill due to cigarette smoking. N1 was taken from the CDC “Tips from former smokers” campaign and described an individual that became ill due to cigarette smoking but then quit and made a full recovery. N2 described a close friend that also became ill due to cigarette smoking but switched to e-cigarettes and made a full recovery. N3 and N4 were derived from N2 but modified to increase the persuasiveness of the narratives. In N3, the close friend was encouraged to switch to e-cigarettes by a physician. In N4, the close friend was encouraged to switch to e-cigarettes by a mutual friend that addressed the stigma of using e-cigarettes. Linear regression models were conducted to compare the differences in demand between the four groups. N2, N3, and N4 were more effective at increasing e-cigarette substitution than N1 ($F(3,112) = 4.35$, p .05). These results demonstrate that narratives are effective at changing behaviors related to cigarette smoking.

Financial Support: NIH grant U19CA157345.

First Name: William

Last Name: DeHart

Degrees: MA MD Ph.D etc:: Ph.D

Company Affiliation: Virginia Tech Carilion Research Institute

ID: 333
Latent classes of internal assets and behavior problems in at-risk adolescents

Meeyoung Min, Case Western Reserve University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Adolescent

Abstract: Aim: The present study aims to: 1) characterize subgroups/classes of early adolescents using indicators of internal assets (e.g., social competencies, positive identity) and behavior problems and 2) investigate how these subgroups are associated with later functioning including substance use and sexual risk behavior in at-risk adolescents. Methods: Participants were 352 adolescents (164 boys, 188 girls), primarily African-American, socioeconomic status, recruited at birth for a prospective study on the effects of prenatal cocaine exposure. At age 12, adolescents' internal assets, using the Developmental Assets Profile, and behavior problems (internal, external, attention, social, thought problems), using the Child Behavior Checklist and the Youth Self-Report, were assessed. At age 15, the Problem Oriented Screening Instrument for Teenagers (POSIT), substance use, via self-report and biologic assays, and early (before age 15) sexual behavior were assessed. Results: Latent class analysis (LCA) indicated a four-class solution as the optimal model (entropy= .80, BIC= 3358): 1) assets-with-problem-behavior (15%); 2) assets-without-problem-behavior (34%); 3) no-assets-without-problem-behavior (33%); and 4) no-assets-with-problem-behavior (18%). The "no-assets-with-problem-behavior" group reported higher mental health problems and aggressive behavior, poorer peer relations and more learning problems than the "assets-without-problem-behavior" and "no-assets-without-problem-behavior" groups on the POSIT at age 15. Logistic regression analyses noted significant ($p < .05$) gender by the class/subgroup interaction on tobacco use and early sexual behavior. More girls in the "no-assets-with-problem-behavior" group reported tobacco use (57%) and early sexual behavior (44%) than girls in other groups, whereas more boys in "assets-with-problem-behavior" reported tobacco use (47%) and early sexual behavior (58%) than boys in other groups. Conclusions: The current findings suggest different risk classes for boys and girls engaged in early sexual and drug use behavior, highlighting the need for early assessments of behavioral problems and internal assets and subsequent tailored prevention and drug use intervention programs.

Financial Support: Supported by NIDA R01-07957 and R01-042747

First Name: Meeyoung

Last Name: Min

Degrees: MA MD Ph.D etc:: M.S.W.;Ph.D.

Company Affiliation: Case Western Reserve University

ID: 334
Double stigma among HIV-positive PWID in Russia and health care outcomes

Karsten Lunze , Boston University School of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: AIDS/Immune

Abstract: AIM While HIV stigma is a known barrier to care globally, little is known about HIV stigma specifically among people who use drugs (PWID) or about substance use (SU) stigma. This study aimed to assess the association between internalized stigma related to HIV and SU, and health care outcomes among PWID living with HIV in Russia. METHODS We conducted multivariable logistic regression analyses of cross-sectional data from 188 participants who reported a lifetime history of SU in the Russia ARCH cohort, an observational study of HIV-positive people in St. Petersburg. Stigma, the main predictor, was a 4-category variable: high (above median) levels of both forms of stigma (HIV&SU); high levels of HIV only; high level of SU only; and low levels of both (reference group). The two primary outcomes were poor access to healthcare in the past year and any past 3 months outpatient care utilization of HIV, addiction, or general services. RESULTS Mean age was 33.5 years, 68% were male, 41% reported past-30-day drug use and 67% past-30-day risky drinking; 35% reported poor access to care and 23% had recently utilized outpatient services. We did not detect a significant association between stigma and poor access to care (AORs ranging from 0.82-1.85 across high stigma groups vs. low stigma; global p-value=0.33) or any recent outpatient care (AORs ranging from 0.6-0.87; global p-value = 0.75). CONCLUSION In this Russian cohort of HIV-positive PWID, HIV and DU stigma were not significantly associated with health care outcomes, possibly due to the cohort's limited statistical power or a consequence of the clinical scenario in which opioid agonist treatment is illegal and HIV care engagement of PWID is evolving in a vertically organized system. The latter explanation raises the possibility that structural barriers perhaps more impede access to and utilization of care than internalized stigma.

Financial Support: 1K99DA041245

First Name: Karsten

Last Name: Lunze

Degrees: MA MD Ph.D etc:: MD, MPH, DrPH

Company Affiliation: Boston University School of Medicine

ID: 335
Neuropharmacodynamic profile of NKTR-181: Correlation to low abuse potential

Eileen Rodriguez, Curry Rockefeller Group

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Opiates/Opioids

Topic: Mechanisms of Action

Abstract: AIM: Drugs of abuse rapidly enter the brain and trigger an immediate surge of dopamine that stimulates reward pathways involved in the reinforcement of drug-taking behaviors underlying abuse and addiction. NKTR-181 is a novel full mu-opioid receptor agonist that has demonstrated low abuse potential in preclinical models and human abuse potential studies. In this study, we investigated the neuropharmacodynamic effects of NKTR-181 to characterize the mechanisms contributing to its low abuse potential. METHODS: The rate of drug uptake into the brain was measured in rats following intravenous administration using the in situ single pass brain perfusion method. Extracellular dopamine levels were measured in the nucleus accumbens of awake rats using in vivo microdialysis. Drug concentrations were measured in brain dialysate and plasma using LC-MS/MS. The time course of opioid-induced miosis in healthy human subjects was monitored by pupillometry after oral dosing. RESULTS: Brain uptake rates for NKTR-181 in rat were approximately 70-fold slower than for oxycodone. In humans, the difference between the time courses of plasma drug exposure and miosis indicated that the half-life of NKTR-181 brain uptake (3.2 h) was 17.5-fold longer than that of oxycodone (0.18 h), reflecting slow entry of NKTR-181 into the brain. In rat microdialysis studies, dopamine levels in the brain increased substantially and rapidly following oxycodone administration, with a high magnitude of peak response. In contrast, NKTR-181 administration resulted in a much lower magnitude of peak dopamine response, and the time to peak response and rate of decay were slower than observed following oxycodone administration. CONCLUSION: The slow brain uptake and blunted dopamine response to NKTR-181 represent a unique neuropharmacodynamic profile consistent with its low abuse potential.

Financial Support: Nektar Therapeutics

First Name: Eileen

Last Name: Rodriguez

Company Affiliation: Curry Rockefeller Group

ID: 336
Prevalence of hazardous drinking differs between HIV+ adults reporting using marijuana for recreational versus medicinal reasons

Zachary Mannes, University of Florida

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: AIDS/Immune

Abstract: Aim: Examine differences in alcohol use and alcohol-associated behavioral consequences between HIV+ marijuana users reporting recreational versus medicinal motives. Methods: HIV+ adults (N = 703) recruited from across Florida completed a questionnaire assessing demographics, hazardous drinking (i.e., 21 drinks or more per week for men and 14 drinks or more per week for women), alcohol related consequences as measured by the Short Inventory of Problems Revised (e.g., SIP-R) and reasons for marijuana use, including recreational use (i.e., getting high, increasing libido, or fitting into social situations) and medicinal marijuana use (i.e., improving appetite; inducing sleep; relieving nausea; relieving pain; relieving anxiety/ depression /stress). Participants reporting past 3 month marijuana use were classified into 2 groups: any recreational use, and medicinal use only. Bivariate analyses assessed differences between recreational and medicinal marijuana users and non-users. Logistic regression analysis evaluated the relationship between marijuana use and hazardous drinking, while adjusting for sociodemographic variables in addition to homelessness, other drug use, anxiety, and depression. Results: Approximately 26% (n=183) and 7% (n=51) of the sample reported recreational and medicinal marijuana use respectively. Roughly 47% of recreational users, 22% of medicinal users, and 31% of non-users reported hazardous drinking (22%; X2 = 18.28, p
Financial Support: This study was funded by the National Institute on Alcohol Abuse and Alcoholism (NIAAA) under grant number U24AA022002, the National Institute on Drug Abuse (NIDA) under grant number 1K23DA039769-01 and NIDA UF Substance Abuse Training Center under grant number T32DA035167.

First Name: Zachary

Last Name: Mannes

Company Affiliation: University of Florida

ID: 337
Susceptibility to traumatic stress accelerates the development of cocaine-associated dopamine transients and drives cocaine use vulnerability

Zachary Brodnik, Drexel University College of Medicine

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Stimulants

Topic: Neurobiology

Abstract: Post-traumatic stress disorder (PTSD) and cocaine use disorder are highly co-morbid psychiatric conditions, with PTSD onset generally occurring prior to the development of cocaine use disorder. Thus, it appears that development of PTSD drives cocaine use vulnerability. We recently characterized a model of PTSD using predator odor stress with segregation of subjects as susceptible or resilient based on elevated plus maze behavior and context avoidance. Using this model, paired with in vivo freely moving fast scan cyclic voltammetry, we measured differences in phasic dopamine signaling (1) in response to a single injection of cocaine, (2) in response to repeated cues that predict the delivery of cocaine injections, and (3) in response to cocaine-paired cues in the absence of a cocaine delivery. In addition, we examined differences in the acquisition of cocaine self-administration behavior across groups. We found that the pharmacological effects of cocaine on spontaneous phasic dopamine transients were increased in susceptibles relative to resilients and controls, and that these changes in the pharmacological effects of cocaine correlate with enhanced development of cocaine-paired cue evoke dopamine transients. We also found that this changes in dopamine signaling correspond with increases in cocaine self-administration acquisition, with susceptible subjects developing cocaine taking behavior more rapidly than their resilient and control counterparts. Together, our results suggest that the experience of traumatic stress increases the rate at which phasic dopamine signals entrain to cocaine-associated cues, and that this engenders vulnerability to developing cocaine use disorder following traumatic stress.

Financial Support: NIDA grant DA031900 to Rodrigo A. España NIDA grant F31DA042505 to Zachary D. Brodnik

First Name: Zachary

Last Name: Brodnik

Degrees: MA MD Ph.D etc:: BSc

Company Affiliation: Drexel University College of Medicine

ID: 338
Non-medical prescription opioid use and disorder in midlife by race, gender, and poverty level in the united states

Hannah Carliner, New York State Psychiatric Institute

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: Aim: Recent studies have estimated national prevalence of non-medical use of prescriptions opioids (NMUPO) and past year prescription opioid use disorder (POUD), but have not assessed intersectional patterns by sociodemographic subgroups. These estimates are important for assessing the scope of the epidemic, targeting interventions, and exploring influences on use and disorder. We sought to estimate the prevalence of NMUPO and POUD by gender, race/ethnicity, and poverty level in mid-life. Methods: We obtained nationally representative samples of U.S. adults aged 35-64 from the 2005-2014 National Survey on Drug Use and Health (pooled N=110,371). We estimated prevalence of past-year (PY) NMUPO and POUD by gender, race/ethnicity (Hispanic, non-Hispanic Black, non-Hispanic White), and household poverty level (< 1 00%, 100-199%, ≥200% the federal poverty level [FPL]). Models accounted for survey weights and multiple comparisons. Results: Middle-aged Whites at < 1 00% FPL had the highest prevalences of PY NMUPO (i.e., 7.1% men, 5.5% women). Prevalence was also high among White men living just above the poverty line (5.4%), and impoverished Hispanic (5.0%) and Black (4.9%) men, highlighting clear patterns by SEP, race, and gender. For PY POUD among users, impoverished middle-aged White men had the highest overall prevalence (30.1%). Hispanic men in the middle income level (24.5%), Black men in the lowest income level (22.1%), and Black women in the lowest (23.4%) and highest (20.5%) income levels made up the top five sociodemographic subgroups. Conclusion: While the high prevalence of NMUPO and POUD among impoverished White men and women is striking, our results highlight that the current opioid epidemic also affects Black and Hispanic Americans. Targeted prevention and treatment efforts are needed across communities to reduce racial disparities that may result if public health resources are not adequately distributed. Unusual patterns for POUD should be explored from an intersectionality perspective.

Financial Support: NIH grants R01DA037866 (Martins), L30DA042436 (Mauro), T32DA031099 (Hasin)

First Name: Hannah

Last Name: Carliner

Degrees: MA MD Ph.D etc:: ScD, MPH

Company Affiliation: New York State Psychiatric Institute

ID: 339
Non-fatal overdose prevalence among people who inject drugs – A multi-stage systematic review and meta-analysis of recent evidence

Samantha Colledge, National Drug and Alcohol Research Centre

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Epidemiology

Abstract: Aim: There has been a recent, dramatic increase in drug-related deaths in several countries, including North America and Australia. Risk of overdose is heightened by injection drug use. Yet, there are interventions (e.g., naloxone distribution) which can reduce risk of fatal overdose amongst people who inject drugs (PWID). This study aims to establish the prevalence of non-fatal overdose among PWID globally. Methods: A global systematic review on injecting drug use and related harms was conducted in accordance with PRISMA and GATHER guidelines. We included sources from peer-reviewed databases (MEDLINE, Embase, PsycINFO), grey literature, and data requests to international experts and agencies. Overdose history among PWID was extracted. These proportions were pooled via meta-analysis to generate national estimates. Results: From 55671 sources reviewed, less than one-tenth included data on the proportion of PWID who reported non-fatal overdose. Globally, less than one-quarter of PWID reported past-year non-fatal overdose. The proportion reporting past-year overdose was particularly high for the United States (28.6%; uncertainty interval (UI) 10.0-51.5) and Canada (23.5% UI 14.3-34.1), and somewhat lower for Australia (10.7% UI 8.3-13.3). Higher country-level income was a correlate of higher proportion of PWID reporting non-fatal overdose in a country. Conclusion: Globally, fewer than one in four PWID have experienced at least one non-fatal overdose in the past year, but there is significant variation, likely related to the types of drugs that are injected and overdose prevention interventions. To reduce risk of fatal overdose, it is necessary to introduce and mainstream services such as naloxone administration training.

Financial Support: This study received funding from The National Drug and Alcohol Research Centre at the University of New South Wales, which is supported by funding from the Australian Government under the Substance Misuse Prevention and Service Improvements grant fund.

First Name: Samantha

Last Name: Colledge

Degrees: MA MD Ph.D etc:: BPsySc

Company Affiliation: National Drug and Alcohol Research Centre

ID: 340
Association of concern over societal increases in discrimination with substance use and mental health amongst adolescents during 2016-2017

Adam Leventhal, University of Southern California

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Adolescent

Abstract: Aim: Teens may vulnerable to the adverse effects of polarizing societal events on substance use and mental health. We tested whether adolescents who expressed greater worry about increasing discrimination in society reported greater substance use and mental health problems from spring 2016 (baseline) to spring 2017 (12-month follow-up)—a period that coincided with the presidential campaign and election of Donald Trump and a dynamic socio-political climate. Methods: A sociodemographically diverse sample of high school students in Los Angeles, CA, USA (N=2,974; baseline age, M[SD]=17.1[0.39]) completed surveys at baseline and follow-up assessing substance use, mental health, and concern/worry/stress about increasing hostility and discrimination in society against minority groups. Results: Each 1SD increase in reported concern about increasing societal discrimination in 2016 was associated with the following outcomes by 2017: 13% more days of marijuana use (IRR[95%CI]=1.13[1.01,1.26]); 11% more days of alcohol use (IRR[95%CI]=1.11[1.02,1.21]); 7% more types of substances used in the past 6 months (IRR[95%CI]=1.07[1.01,1.17]); 11% greater odds of depressive symptoms (OR[95%CI]=1.11[1.01, 1.23]); and 12% greater odds of attention deficit hyperactivity disorder (OR[95%CI]=1.12[1.01, 1.26]). Positive associations between changes in societal discrimination concerns from 2016 to 2017 and several adverse substance use outcomes in 2017 were also observed; some of these associations were stronger amongst teens who were had less educated parents. Conclusion: Recent societal increases in resentment and animosity directed toward minorities is a source of concern in youth that is associated with adverse behavioral health outcomes, particularly in youth from socioeconomically disadvantaged families.

Financial Support: National Institutes of Health Grant (R01-DA033296)

First Name: Adam

Last Name: Leventhal

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: University of Southern California

Contact Title: Assistant Professor of Preventive Med. and Psychology

ID: 341
Participants' preferences for BUP-NX or XR-NTX and associations with induction successes and relapse rates in the CTN-0051 opioid treatment trial

Jacqueline King, The Emmes Corporation

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: Aim: sublingual buprenorphine-naloxone (BUP-NX), a partial opioid agonist, and extended-release injection naltrexone (XR-NTX), an opioid antagonist, are very different opioid relapse-prevention pharmacotherapies. This analysis examined participants' preferences for BUP-NX and XR-NTX and whether these preferences, in combination with the medication to which they were randomized, were associated with induction success rates or relapse outcomes in the NIDA CTN-0051 Extended-Release Naltrexone vs. Buprenorphine for Opioid Treatment study. Methods: an 11-item Motivation and Attitudes Regarding Study Medications survey was administered to participants at screening. Five-point Likert scale items assessed motivation for participating in the study and attitudes and expectations regarding study medications. Results: 570 participants (100%) completed the survey. Willingness to accept either medication was a study inclusion criterion. However, 29% indicated preference for XR-NTX and 33% indicated preference for BUP-NX. Medication preference was significantly associated with induction success when participants were randomized to their preferred treatment. Specifically, participants preferring XR-NTX were more likely to fail induction if they were randomized to BUP-NX (18.7%), compared with those preferring BUP-NX (1.3%), $p < 0$ .0001. There was no significant difference between participants preferring BUP-NX and those preferring XR-NTX in XR-NTX induction failures. Medication preference may also be associated with relapse. Participants who preferred and received XR-NTX had lower relapse rates (47.1%) compared with those who preferred BUP-NX but received XR-NTX (60.3%), although that difference was not significant ($p = 0.16$). For participants who received BUP-NX, there was no difference in relapse rates related to whether they received their preferred medication (55.8%) or the alternative (55.7%). Conclusion: Medication preference may be important clinically and in research. Including a preference measure in clinical studies provides insight into participants' perceptions of treatment and may shed light on induction success and other study outcomes. In clinical practice, medication preferences should be explored and taken into consideration when planning treatment.

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First Name: Jacqueline

Last Name: King

Degrees: MA MD Ph.D etc:: MS

Company Affiliation: The Emmes Corporation

ID: 342
Evaluating perceived risk of driving under the influence of cannabis and driving behavior

Jacob Borodovsky, Geisel School of Medicine at Dartmouth

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Epidemiology

Abstract: Aim: Cannabis legalization may exacerbate rates of driving under the influence (DUI) of cannabis. Effective DUI prevention strategies require identification of high-risk groups. This study examined how age and cannabis use patterns relate to perceived risk of DUI and self-reported DUI. Methods: Data (n=9038) were collected from adults using a web-survey distributed via Facebook. Survey items assessed demographics, cannabis use, perceived risk of DUI, and DUI behaviors. Age was dichotomized into young adults (18-25) vs. adults (26+). Respondents were categorized based on lifetime cannabis use (never-user vs. ever-user). Ever-users were then dichotomized into two groups, current (i.e., past-month) vs. non-current users. Chi-squared tests and adjusted logistic regression models were used to investigate the effects of age and cannabis use on perceived risk of DUI and self-reported DUI behavior. Results: N=2143 cannabis never-users (n=733 young adults) and n=6895 lifetime cannabis users (n=3302 young adults) participated in the survey. Only 39% of never-users believed a person could drive safely under the influence, while 46% of non-current users and 87% of current users believed they could drive safely under the influence (p 20 occasions. Young adults were 1.6 times more likely than adults to report cannabis DUI in the past month (p < 0 .01). Conclusion: A substantial proportion of current cannabis users in this sample reported cannabis DUI, and believing that they could do so safely. Such beliefs and behavior are more pronounced among young adults.

Financial Support: R01-DA032243, R01-DA015186, T32-DA037202, P30-DA029926

First Name: Jacob

Last Name: Borodovsky

Degrees: MA MD Ph.D etc:: B.A.

Company Affiliation: Geisel School of Medicine at Dartmouth

ID: 343
Preliminary efficacy of adjunct components for couples HIV testing and counseling: Reducing drug use and depression in gay couples

Tyrel Starks, Hunter College, CUNY

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: AIDS/Immune

Abstract: AIM: Main partners account for many – possibly most -- new HIV infections among men who have sex with men. Couples HIV Testing and Counseling (CHTC) is efficacious in reducing HIV risk for gay male couples. The current study tested the preliminary efficacy of two adjunct components to CHTC: 1) a module in which the couple discussed drug use – a well-established correlate of HIV risk; and 2) a communication skills training video (ACTV) viewed before CHTC which modeled effective communication between relationship partners. Methods: A randomized controlled trial was conducted with gay male couples (ncouples = 70; 140 individuals) recruited in New York City. At least one partner in each was 18 to 29; one reported recent (past 30 days) drug use; and one was HIV-negative. In a factorial design, half of the couples were randomly assigned to complete the drug-use module and half viewed the ACTV. Participants reported on the number of days they used specific drugs and completed the Center for Epidemiological Studies Depression scale revised (CESD-R) at 1-, 3- and 6- month follow-ups. Results: GEE models (controlling for nesting within-couple) in 3-month follow-up data indicated that men who completed the drug use module reported 49% fewer instances of drug use (B = -0.67; 95%CI: -1.18, -0.16; expB=0.51; p = .01). Those who viewed the ACTV had significantly lower depression scores (B = -6.19; 95%CI: -11.52, -0.85; p = .02). Trends appear stable in available 6-month follow-up data (which will be fully collected in February, 2018). Conclusions: The integration of adjunct components addressing substance use and dyadic functioning may meaningfully expand the benefits of CHTC through statistically significant and clinically meaningful reductions in drug use and depression. Discussing drug use together is theorized to activate joint goal-setting and elicit partners' support of one another in reducing drug use. ACTV may decrease depression by improving dyadic functioning.

Financial Support: Financial Support: This project was funded by a grant from the National Institute of Drug Use (R34-DA043422, PI: Starks).

First Name: Tyrel

Last Name: Starks

Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: Hunter College, CUNY

ID: 344
A novel platform to generate opioid-specific monoclonal antibodies to counteract opioid overdose

Carly Baehr, University of Minnesota, Department of Veterinary Medicine

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Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: AIM Vaccines have been proposed as a therapeutic option to curb drug abuse by stimulating production of polyclonal antibodies that prevent drug distribution to the brain. As compared to opioid receptor antagonists, opioid-specific antibodies do not interfere with endogenous opioid signaling, or with other opioid medications for pain management and addiction treatment. Vaccines for opioid abuse have shown pre-clinical efficacy, but their clinical use in preventing or reversing overdose may be limited by the ability of individual subjects to generate effective levels of antibodies. Passive immunization circumvents this limitation through direct administration of high doses of monoclonal antibodies (mAb). Additionally, mAb could be co-administered with naloxone to facilitate reversal of opioid overdose. Here, we generated mAb against oxycodone using hybridoma technology paired with a novel antigen-based magnetic enrichment strategy to isolate oxycodone-specific B cells. METHODS Mice (n=4) were immunized with a lead conjugate vaccine containing an oxycodone-based hapten (OXY) on days 0 and 28. After boosting, lymph nodes and spleens were harvested, and OXY-specific B cells were magnetically enriched and fused with Sp2/0 myeloma cells in vitro. Lead hybridoma clones were identified by ELISA for secretion of oxycodone-specific mAb. RESULTS Of 288 clones screened, 24 clones expressed oxycodone-specific IgG mAb. Further analysis showed that all 24 clones expressed the IgG1 subtype. The 10 clones with the highest OXY-specific mAb expression were expanded, and mAb were purified from the hybridoma culture supernatant for in vivo testing in mouse models of opioid abuse and overdose. Isolated mAb were specific for oxycodone and did not bind naloxone. CONCLUSION Antigen-based magnetic enrichment accelerates development of opioid-specific mAb for pre-clinical testing. This strategy can be utilized to isolate both mouse and human B cells for expression of drug-specific mAb. In the field, opioid-specific mAb can be co-administered with naloxone to reverse opioid overdose.

Financial Support: T32DA007097 (CB) and Minneapolis Medical Research Foundation Translational Research Program

First Name: Carly

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Company Affiliation: University of Minnesota, Department of Veterinary Medicine

ID: 345
Investigating the relationship between perceived availability of marijuana and marijuana use among adolescents in Chile, Argentina, and Uruguay over time

Julia Schleimer, Columbia University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Adolescent

Abstract: AIM. In 2013, Uruguay became the first country to legalize recreational marijuana use. More permissive marijuana policies have prompted concern about increases in access to marijuana and marijuana use among adolescents. We estimated trends in perceived availability of marijuana in Uruguay, Argentina, and Chile, and examined how the magnitude of the association between perceived availability of marijuana and marijuana use changed from 2001-2015. METHODS. Using national, repeated, cross-sectional data on substance use collected from students in grades 8-12 in Uruguay, Argentina, and Chile (n=388,581) from 2001-2015. We modeled the prevalence of perceived availability (easy vs. difficult/not able to obtain) of marijuana and any past-month marijuana use by country. We used weighted time-varying effect methods to test whether the association changed over time. RESULTS. On average, 66.4%, 57.8%, and 71.4% of students perceived marijuana as easily available in Chile, Argentina, and Uruguay, respectively. Students who perceived marijuana as easily available had higher odds of past-month marijuana use on average over time [Chile: OR=4.59, 95% CI=(4.30, 4.89); Argentina: OR=15.21 (13.53, 17.11); Uruguay: OR=18.94 (13.14, 27.29)] compared to those who perceived marijuana to be difficult/not able to obtain. In Chile, the association was strongest in 2001 (OR=6) and 2013 (OR=6), and weakest in 2009 (OR = 3.7). In Argentina, the association strengthened from 2005 (OR=8) to 2007 (OR=20), and remained relatively stable thereafter. In Uruguay, the association was strongest in 2001 (OR=40), weakened until 2009 (OR=18), and remained stable until 2014. CONCLUSION. Perceived availability is a significant predictor of marijuana use in adolescence. The new marijuana law in Uruguay did not modify this association in the short term. The effect was weakest in Chile, and similar and stable in Argentina and Uruguay since 2007-2009. Future studies should examine factors that modulate the evolving relationship between perceived availability and marijuana use across and within countries.

Financial Support: FUNDING: This work was supported by the National Institute on Drug Abuse, R01DA040924-01 (Cerdá)

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Last Name: Schleimer

Degrees: MA MD Ph.D etc:: BS

Company Affiliation: Columbia University

ID: 346
Trends in illicit drug use among cigarette smokers in the US, 2002-2014

Renee Goodwin, The City University of New York and Columbia University

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Epidemiology

Abstract: AIM: Cigarette smoking has declined in the United States (US). Still, identifying prevalent and modifiable barriers to quitting can help inform the next steps for tobacco control. Illicit drug use, which may be increasingly common in the US, could be one such factor. We investigated the relationship between past-month illicit drug use and cigarette smoking status, and estimated trends in the prevalence of past-month illicit drug use by cigarette smoking status from 2002-2014 in the US. METHODS: The 2002-2014 National Survey on Drug Use and Health was used to obtain nationally-representative data on past-month illicit drug use. RESULTS: From 2002 to 2014, past-month illicit drug use (for all drugs considered) was nearly five times more common among current smokers than among former smokers (adjusted odds ratio=4.79), and nearly twice as prevalent in former smokers as in never smokers (adjusted odds ratio=1.99). Illicit drug use increased linearly over time from 2002-2014 in the entire general population (i.e., across and within current smokers, former smokers, and never smokers). This increasing trend in drug use was most rapid among former smokers (relative to current smokers and never smokers) and was largely, but not entirely, driven by increases in cannabis use. CONCLUSION: Illicit drug use is most prevalent among current cigarette smokers. Yet, the rate of increase in illicit drug use prevalence was most rapid among former smokers. Because former smokers outnumber current smokers in the general population, it could be important to monitor former smokers into the future for potential negative drug-related outcomes.

Financial Support: This work was supported by a grant from NIH/NIDA (DA20892).

First Name: Renee

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Company Affiliation: The City University of New York and Columbia University

ID: 348
Perceptions and practices addressing diversion among US buprenorphine prescribers

Lewei (Allison) Lin, University of Michigan

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: Authors: Lewei (Allison) Lin, Michelle R. Lofwall, Sharon L. Walsh, Adam J. Gordon, Hannah K. Knudsen Aim: With the increase in prescribing of buprenorphine for the treatment of opioid use disorder in the US, there have been increased concerns about the risk of buprenorphine diversion and how providers are mitigating these risks in clinical practice. This study examines prescribers' attitudes and practices regarding buprenorphine diversion and how they relate to prescriber characteristics. Methods: A national random sample of buprenorphine prescribers (N= 1,174) completed surveys from July 2014 to January 2017. Analyses examined relationships between prescriber and practice characteristics and prescriber perceptions and approaches regarding diversion. Results: Among this sample of buprenorphine prescribers, 79.0% (N = 898) reported assessing all patients for risk of buprenorphine diversion and misuse. A third of prescribers described diversion as a significant or very significant concern in their community. The majority of prescribers reported routinely testing urine for buprenorphine. Perceptions of diversion being a greater problem in their community (AOR 1.207, 95% CI 1.071-1.361) and use of medication counts were associated with increased likelihood of terminating patients when diversion was suspected (AOR 1.006, 95%CI 1.003-1.009), while accepting Medicaid (AOR 0.671, 95% CI 0.473-0.952) and having expertise in addiction (AOR 0.474, 95% CI 0.376-0.599) or psychiatry (AOR 0.691, 95% CI 0.538-0.888) were associated with decreased odds of terminating treatment for suspected diversion. Conclusions: Buprenorphine prescribers report diversion is an important issue, and most prescribers report that they assess patients for diversion, though specific practices differ based on prescriber and practice characteristics.

Financial Support: a University of Michigan, Department of Psychiatry, North Campus Research Complex 2800 Plymouth Road, Ann Arbor, MI 48109 b VA Center for Clinical Management Research (CCMR), Department of Veterans Affairs Healthcare System, Ann Arbor MI, North Campus Research Complex, 2800 Plymouth Rd Ann Arbor, MI 48109

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ID: 349
Longitudinal evaluation of PSTD symptoms as a function of cannabis use status

Megan Brunstetter, Rocky Mountain MIRECC, VA Eastern Colorado Health Care System

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Treatment

Abstract: Aims: Studies indicate that cannabis use disorder can negatively impact posttraumatic stress disorder (PTSD) treatment outcome. However, cannabis is now approved for use in treating PTSD in many states. This prospective observational study examined the impact of medicinal cannabis use on the trajectory of PTSD symptoms over time. Methods: One-hundred-five patients with PTSD have been enrolled in this ongoing observational study. Cannabis users (n=75) and non-users (n=30) were matched at study baseline on gender, primary trauma type, and number of comorbid psychiatric conditions. PTSD diagnosis and symptomatology were determined with the Clinician Administered PTSD Scale for DSM-5 (CAPS-5) and self-reported sleep dysfunction was assessed with the Insomnia Severity Index (ISI). Measures were obtained at Baseline and again 3-, 6-, 9-, and 12-months later. Group differences in CAPS-5 and ISI scores were examined with t-tests at Baseline and longitudinally with repeated measures ANOVAs. Results: Preliminary analyses indicate no differences between cannabis users and non-users on PTSD symptom severity at Baseline (p=.62). Though both groups improved over time (pp>.10). ISI scores indicated worse sleep at Baseline among cannabis users versus non-users, but the difference was not significant (p=.19). Improvement in sleep from Baseline to 3-month follow-up was observed for cannabis users (p=.09), while non-users reported no change in sleep during the same period (p=.97). Conclusions: Interim results are consistent with empirical work highlighting the benefits of cannabis use for PTSD symptomatology, and extend these findings over a longer evaluation period. Future analyses will include additional time points and evaluation of clinical outcomes of cannabis users by specific cannabinoid concentration (e.g., THC, CBD).

Financial Support: A grant provided by the Colorado Department of Public Health and Environment

First Name: Megan

Last Name: Brunstetter

Company Affiliation: Rocky Mountain MIRECC, VA Eastern Colorado Health Care System

ID: 350
Counteracting reflexive, dehumanizing responses

Michael Soh, Greater Los Angeles VA Healthcare System

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Treatment

Abstract: Aim Homeless veterans suffer high rates of physical, mental, and social problems, including severe substance use disorders. Effective treatment requires an interprofessional team with considerable technical expertise and a humanistic approach. However, many patients are angry, threatening, malodorous or poorly adherent to treatment, making it difficult to maintain a humanistic approach. To address this problem, we have developed the Humanism Pocket Tool (HPT) - seven techniques pulled from the realms of appreciative inquiry, storytelling, active listening, and mindfulness, that are designed to promote patient-centeredness by counteracting reflexive, dehumanizing responses to patients with complex needs. Methods We developed a standardized, quick, and explicit tool for IP teams in their care of homeless Veterans and applied and integrated simple yet effective intrapersonal and interpersonal techniques into common clinical interactions. Rooted in evidence-based literature as well as discipline-based best practices, the HPT evolved into an interdisciplinary tool that members of the IP team could engage with and seamlessly incorporate into their daily practice. Results Current outcomes of interest include frequency of use and impact on humanistic attitudes and behaviors of providers. Preliminary quantitative feedback from thirteen trainees indicated a need for additional modeling and teaching of the HPT. Trainees included internists, nurse practitioners, pharmacists, psychiatrists, and psychologists. On 1-4 Likert scales, though there was frequent use of the tool (mean=2.68; 4=used during all visits) and most trainees found the techniques to be beneficial for their practice and patients (mean=2.95; 4=very helpful to patients/major impact on clinical practice), a difference was noted across various professions regarding its use (mean internal medicine score for frequency=2.57, non-medicine score=2.85; mean internal medicine benefit score=2.74, non-medicine score=3.38). Further analysis is required to determine why these differences exist and how they unfold during interprofessional team-based patient care. Continuous reflection and periodic assessment allows us to continue to refine the tool. Future plans include expanded marketing and dissemination of the tool. Conclusion The robust development of the HPT has been a collaborative and interdisciplinary effort, involving providers from nursing, pharmacy, internal medicine, psychology, and psychiatry. Through constant reflection and practice, the HPT has become a fixture in weekly leadership meetings, various clinic activities, and interactions with Veterans. One of the tools - the vivid vignette, a strategy designed to illuminate both the person and their goals, rather than just their problems - has become a fundamental part of case presentations and conferences. It has set the stage for clinicians to take a deep dive into the challenges homeless patients face with a more compassionate mindset.

Financial Support: Funding provided by the Department of Veterans Affairs, Office of Academic Affiliations, Centers of Excellence in Primary Care Education and the Arnold P. Gold Foundation.

First Name: Michael

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Degrees: MA MD Ph.D etc:: Ph.D

Company Affiliation: Greater Los Angeles VA Healthcare System

ID: 351
Embedding tobacco dependence treatment within addictions treatment settings: Substance use co-morbidity and other predictors of cessation

Laurie Zawertailo, Centre for Addiction and Mental Health

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Treatment

Abstract: AIM: The prevalence of tobacco dependence among those with a substance use disorder (SUD) is more than double the general population. However, treatment for tobacco dependence is seldom undertaken within addiction treatment facilities. We hypothesized that implementing tobacco dependence treatment within these settings would result in cessation outcomes that are comparable to that found in primary care settings but may be lower among those being concurrently treated for a SUD. METHODS: Between April, 2016 and November, 2016, 1,961 individuals enrolled in the smoking cessation program across 25 addictions settings. The program offered cost-free treatment consisting of behavioral counselling and nicotine replacement therapy for up to 26 weeks. Data from participants who completed a 3-month follow-up survey (n=490) were included in the first analysis. Chi-square and t-tests for between group analysis of differences in baseline characteristics and smoking abstinence at 3-month follow-up was done using SPSS v.21.0. RESULTS: Of the 490 participants analyzed, 199 (41%) were in treatment for another SUD in the past 30 days. Those in treatment for an SUD were younger (41 +/- 12 vs 50 +/- 13; p CONCLUSION: These preliminary findings suggest that smoking cessation can be successfully undertaken in those also in treatment for another SUD but specific attention may need to be paid to co-occurring mental health issues in order to improve quit outcomes.

Financial Support: Funded by the Ontario Ministry of Health and Long-term Care

First Name: Laurie

Last Name: Zawertailo

Degrees: MA MD Ph.D etc:: PhD

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ID: 352
The role of impulsivity in the relationship between prescription opioid use and borderline personality disorder features in a substance use disorder treatment sample

Noel Vest, Washington State University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Other

Abstract: AIM: Much of the current research suggests that borderline personality disorder (BPD) pathology precedes substance use problems; however, some evidence suggests that BPD is predicted by or made worse by substance use. Further, prescription opioid use may worsen BPD pathology through facets of impulsivity among adult drug users. Thus, in the current study we tested whether the association between BPD features and prescription opioid use was consistent with the relationship between BPD and alcohol and cannabis use. Additionally, we predicted that lifetime prescription opioid use would have an indirect effect on BPD features through its effect on the impulsivity facets of negative urgency and lack of perseverance. METHODS: The sample included 357 individuals in outpatient substance abuse treatment (66 % male) with an age range from 18 to 73 years (M = 34.89, SD = 11.63). The sample was 71 % White, 18 % Hispanic, 3 % Asian American, 4 % African American, and 4 % Biracial/Other. Participants filled out self-report surveys measuring drug use, facet levels of impulsivity, BPD features, and demographic information. RESULTS: After trichotomizing individuals into non-use, moderate use, and daily use groups for each substance, we computed an analysis of covariance and found that only the non-use group for prescription opioids was lower in BPD features than the moderate and daily use groups. The parallel model of indirect effects, with the facets of impulsivity (negative urgency, lack of perseverance, lack of premeditation, sensation seeking) as mediators, indicated that the 95% bootstrap confidence intervals for negative urgency (0.65: 0.28 to 1.11) and lack of perseverance (0.19: 0.05 to 0.42) were significant. CONCLUSION: Our results suggest that there may be something specific about the neural effects of prescription opioids that appear to be making features of BPD worse and the same effect is not seen for alcohol or cannabis use.

Financial Support: This project was funded by a grant through the Alcohol and Drug Abuse Research Program at Washington State University. Grant number 13B-2474-1362.

First Name: Noel

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Degrees: MA MD Ph.D etc:: M.S.

Company Affiliation: Washington State University

ID: 353
Cortical gyrification as a potential predisposition biomarker of adolescent substance abuse

Arkadiy Maksimovskiy, McLean Hospital

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Alcohol

Topic: Adolescent

Abstract: BACKGROUND: Adolescents with a family history of substance abuse (FH+) exhibit neurobiological and personality differences that may confer a vulnerability for future substance problems. While morphological brain changes in cortical volume and thickness have been reported in FH+ adolescents, cortical gyrification (folding) has not yet been explored. AIM: Given that cortical gyrification decreases during mid-adolescence, this study examined (1) the effects of FH status on gyrification in brain regions that undergo substantial remodeling during adolescence (frontal/temporal lobes) and (2) associations between gyrification, sensation seeking, and impulsiveness (traits known to predict substance abuse), in substance naïve youth. METHODS: Thirty-three adolescents (13-14yrs) were stratified into FH+ (N=15) and family history negative (FH-; N=18) groups matched on age, sex, and handedness. Participants underwent MRI at 3.0T and completed the Barratt Impulsiveness and Brief Sensation Seeking Scales. Gyrification measures were computed using Freesurfer and FH comparisons were conducted using regression models. RESULTS: No significant group differences in gyrification or behavioral measures were evident, however gyrification decreased as a function of age in left middle-caudal-frontal gyrus (LmCFG; p=0.018) and left precentral gyrus (LPG; p=0.053) in the FH- group, but not in the FH+ group. Regardless of FH status, significant negative correlations were observed between LmCFG gyrification and motor impulsivity (p=0.04), and LPG gyrification and experience seeking (p=0.02). CONCLUSION: Even though associations between cortical gyrification and impulsiveness/sensation seeking did not differ between FH groups at this single study time point, it is plausible that the developmental time course of relationships between gyrification and behavioral traits, known to predict substance use disorders, might vary based on FH status. Further, the FH differential gyrification/age effect was observed within only a one-year age range, suggesting that neurobiological changes are rapid during adolescence, and that developmental biomarkers of risk may help identify vulnerabilities for substance use disorders in FH+ youth.

Financial Support: R01 AA022493 (Silveri) and T32 DA015036 (Lukas)

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Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: McLean Hospital

ID: 354
Sources of prescription drug misuse among US emerging adults

Sean McCabe, University of Michigan

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: Aim: This study examined prescription drug misuse (PDM), sources of PDM and substance use disorder (SUD) symptoms among U.S. emerging adults. Methods: Data were collected from national samples of high school seniors as part of the 2009-2015 cohorts (n=16,464) of the Monitoring the Future (MTF) study and from young adults aged 18-25 years from the 2009-2014 cohorts n=106,845).of the National Survey on Drug Use and Health (NSDUH). Results: Based on the MTF data, obtaining prescription drugs from relatives for free and from leftover medication were more prevalent sources of PDM among females, while purchasing prescription drugs was more prevalent among males. High school seniors given free prescription opioids or tranquilizers from friends were more likely to report recreational motives (e.g., get high). In contrast, those given free prescription opioids or tranquilizers from relatives were more likely to report self-treatment motives (e.g., relieve physical pain). Based on the NSDUH data, prescription opioid and tranquilizer misuse was most prevalent by emerging adults not attending college while college students/graduates had the highest rates of prescription stimulant misuse. Obtaining prescription drugs from friends/relatives for free was the most common source of PDM, especially among college students/graduates. Seventy percent (70.7%) of past-month prescription drug misusers reported 2+ SUD symptoms. Prescription drug misusers who obtained medications from physicians, purchases or multiple sources were more likely to report SUD symptoms. Conclusion: The MTF findings show the importance of differentiating between friends and relatives when assessing PDM sources. The NSDUH findings indicate that sources of PDM vary by educational status among emerging adults and that the college environment is associated with sharing prescription drugs. Taken together, both studies provide unique insights regarding PDM and sources that are associated with increased risk for SUD that can help guide prescribing and monitoring practices to reduce PDM among emerging adults. R01DA043961 and R01DA031160.

Financial Support: Supported by R01DA043961 and R01DA031160.

First Name: Sean

Last Name: McCabe

Degrees: MA MD Ph.D etc:: M.S.W., Ph.D.

Company Affiliation: University of Michigan

Contact Title: Assistant Research Scientist

ID: 355
Opioid use disorder rates and treatment retention after implementation of a primary care tiered-based approach

Steffani Bailey, Oregon Health & Science University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: Aims: Treatment within primary care settings can help address opioid use disorders (OUD). This study examined 1) OUD medication-assisted treatment (MAT) rates by patient characteristics, and 2) changes in OUD diagnosis, MAT, and behavioral health (BH) visits after implementation of a primary care-based tiered treatment model including pharmacotherapy and integrated BH services. It was hypothesized that post-implementation rates would be higher for all measures. Methods: Electronic health record data were extracted from adult patients with an OUD diagnosis and ≥1 visit to either of two clinics between 9/1/2015-8/31/2017 (n=1810 patients). We examined differences in rates of having ≥1 MAT order by patient characteristics. We then assessed changes pre-post implementation (9/1/2015-8/31/2016 vs. 9/1/2016-8/31/2017) in OUD diagnosis, average number of months with MAT order (retention), and average number of BH visits per patient. Results: Percent with OUD and ≥1 MAT order did not differ by gender. Patients aged 25-34 had the highest percent of ≥1 MAT ordered (43.9%). Sixty-one percent of commercially-insured patients with OUD received ≥1 MAT order, compared with 37.2% of Medicaid-insured, and 39.4% of uninsured patients. Among patients with OUD, 41.2% of Hispanics, 39.5% of non-Hispanic whites, and 26.9% of blacks received ≥1 MAT order. The highest percent of patients with ≥1 MAT order by comorbidity was among those with a psychiatric diagnosis or current smoker status (>40%). Pre-post implementation rates were similar for OUD diagnosis (7.1% and 7.3%, respectively), ≥1 MAT order (4.3% vs 4.7%, respectively), and MAT retention (4.97 and 4.91, respectively). The average number of BH visits per patient who had ≥1 MAT order increased from 8 pre-implementation to 13 post-implementation. Conclusions: Receipt of MAT varied by patient characteristics. BH visits, but not MAT retention or OUD diagnosis, increased after implementation of the treatment model. Future studies are warranted to determine the impact on treatment success.

Financial Support: NIDA awards #K23-DA037453 and #UG1-DA015851

First Name: Steffani

Last Name: Bailey

Degrees: MA MD Ph.D etc:: Ph.D

Company Affiliation: Oregon Health & Science University

ID: 356
The interactive effects of perceived peer drinking and personality on adolescent drinking trajectories

Nina Pocuca, Queensland University of Technology

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Alcohol

Topic: Adolescent

Abstract: AIM Perceived peer drinking (PPD) and personality are both unique predictors of adolescent drinking trajectories; however, it is unclear how they may interact to influence such trajectories. This study prospectively examined the interactive effects of PPD and personality, on adolescent drinking trajectories. It was hypothesized that the personality profiles of sensation seeking, impulsivity, and hopelessness would exacerbate risk of belonging to a drinking trajectory, whereas anxiety sensitivity would reduce risk of belonging to a drinking trajectory, when adolescents perceived their peers to be drinking. METHODS Adolescents (N = 1,552;Mage at T1=13.47) completed six surveys across three years measuring drinking and personality, as part of the control group of a large, school-based cluster randomized controlled prevention trial in Australia. Latent Transition Analysis (LTA) was used to identify different types of drinking trajectories. A multinomial logistic regression examined the interactive effects of PPD and personality, on the resultant trajectories. RESULTS The LTA revealed four drinking trajectories: abstinence (n=649); sipping (n=464); experimental (n=177); and recurrent (n=262). Regression results highlighted a significant interaction between PPD and anxiety sensitivity on the sipping (OR=0.93;95% CI[0.88–0.98], p=.007) and recurrent (OR=0.94;95% CI[0.88–0.99], p=.027) trajectories. Simple slopes revealed the effect of PPD on the sipping trajectory was stronger when adolescents reported low (OR=1.99;95% CI[1.55–2.54], p< .001), compared to high (OR=1.25;95% CI[1.02–1.53], p = .034) anxiety sensitivity. The effect of PPD on the recurrent drinking trajectory was also stronger at low (OR=2.78;95% CI[2.13–3.63], p< .001), compared to high (OR=1.83;95% CI[1.44–2.30], p< .001) anxiety sensitivity. CONCLUSION Adolescents low on anxiety sensitivity, who perceived their friends to be drinking, were significantly more likely to have a sipping or recurrent adolescent drinking trajectory, compared to those high on anxiety sensitivity. While replication is needed, current results suggest adolescents with these characteristics may be particularly susceptible to drinking and may benefit from early prevention programs.

Financial Support: Nina Pocuca is supported by an Australian Postgraduate Award and a Centre for Youth Substance Abuse Research top-up scholarship. The Climate Schools Combined Study is funded by the National Health and Medical Research Council.

First Name: Nina

Last Name: Pocuca

Company Affiliation: Queensland University of Technology

ID: 358
Brain inflammation and cognitive bias in methamphetamine dependence

Ziwei Zhang, University of California Los Angeles

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Stimulants

Topic: Imaging

Abstract: Aims: Methamphetamine (MA) use produces various behavioral problems, including psychosis. Given evidence for a role of neuroinflammation in MA-induced neurotoxicity, we examined whether MA-dependent individuals (DSM-IV) exhibit brain inflammation, and whether this neuroimflammation is related to cognitive biases which are considered important for the pathogenisis of psychosis. Methods: Because activated microglia exhibit increased expression of the mitochondrial translocator protein (TSPO) 18 kDa due to inflammation, we used [C-11]DAA1106, a TSPO tracer, and positron emission tomography (PET) to assess neuroinflammation. Participants were 8 MA-dependent individuals (abstinent from MA for ≥4 days) with high-affinity TSPO binding genotypes, and 10 controls matched for TSPO binding genotype. They completed PET scans and the Cognitive Biases Questionnaire for Psychosis (CBQp). Results: MA-dependent participants showed a trend for higher whole-brain TSPO binding (24.1%), indicated by the standardized uptake value (SUV) ($p=0.054$). Regional SUV values showed group differences in the dorsolateral prefrontal, anterior cingulate, and orbitofrontal cortices ($p < 0 .05$). Because tobacco smoking can affect TSPO binding, we subsequently controlled for the number of cigarettes smoked per day; doing so removed the group differences in TSPO binding, suggesting that they were driven by tobacco smoking. There was no significant group difference in CBQP scores. When combing both groups, whole-brain SUV, as well as values in medial and lateral ventral and dorsal prefrontal cortex were correlated with scores on the "Jump to Conclusion" scale of the CBQp. SUV values in medial prefrontal cortex (dorsal and ventral) were correlated with total CBQp scores and the "Anomalous Perceptions" scale. Conclusion: These findings reinforce the observation that brain inflammation is influenced by cigarette smoking, and suggest that it is affected by chronic MA use.
However, although a larger sample may be needed to make a definitive statement. Irrespective of MA dependence, brain inflammation appears to be related to measures of cognitive bias, warranting future study.

Financial Support: This research was supported, in part, by grants from the National Institute on Drug Abuse (R01 DA015179, R01 DA020726, P20 DA022539, T32 DA024635, E.D.L.) and the National Center for Research Resources (M01 RR00865), and endowments from the Thomas P. and Katherine K. Pike Chair in Addiction Studies and the Marjorie M. Greene Trust. K.O. was, in part, supported by Department of Psychiatry, Chiba University, DOMONKAI fund.

First Name: Ziwei

Last Name: Zhang

Degrees: MA MD Ph.D etc:: B.A.

Company Affiliation: University of California Los Angeles

ID: 359
Preparing post-graduate trainees to deliver team-based primary care to homeless veterans

Michael Soh, Greater Los Angeles VA Healthcare System

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Treatment

Abstract: Aim Well-functioning health care teams deliver high quality care, with fewer errors, and provide a better care experience for patients and clinicians. In our clinic, we serve homeless Veterans with high rates of physical, mental, and social health problems - many with extensive histories of substance use disorders (SUD). As such, it is imperative that graduates are prepared to deliver efficient and effective team-based care within this environment. We describe a workplace-based curriculum to train an interprofessional team of health professions trainees to care for homeless Veterans. The curriculum focuses on four team-based activities – a daily Super Huddle, weekly Case Conferences, weekly Team Meetings, and weekly Panel Management sessions. Methods We developed a curriculum based on workplace learning experiences and reflection to train an interprofessional team of post-graduate trainees to deliver team-based care for Veterans with complex needs. Through evidence-based literature and discipline-specific best practices, these team-based activities evolved in response to clinic structure and flow, trainee feedback, and various learning outcomes. Results Current outcomes include team collaboration, function, and communication for thirteen trainees from five disciplines (internal medicine, nurse practitioner, psychology, pharmacy, and psychiatry). Preliminary analysis of the ACE-15 instrument (Assessment for Collaborative Environments) indicated a high level of team collaboration, function, and communication. Out of a maximum average score of 60, the average trainee score was 50.46 (SD 4.52), suggesting that team collaboration and function were high and team members were largely in agreement with regards to their perceptions of how their 'team' collaborated, functioned, and communicated. These findings were stronger than the national average of training programs with similar curricula (mean=47.7, SD=6.4). Qualitative feedback shed light on the collaborative orientations of various disciplines within the training program and that the workplace-based interprofessional curriculum was impacting their approach to patient care. Conclusion Building a strong interprofessional team to care for complex patients has required an increased understanding of team roles and expertise, continuous reflection, and a commitment to engaging in team-based workplace activities. Since our first year, another team of trainees has been added to the clinic and thus, learning activities have doubled while continuing to facilitate learning interprofessional teamwork at the point of care. As a result, workplace curriculum has been streamlined to ensure team-based care practices focus on the complex and urgent needs of homeless Veterans and continue to be modeled. Though our first year of feedback is fairly positive, further analysis is needed to determine the impact of the curriculum on additional trainees, streamlined curriculum, and increased faculty responsibilities.

Financial Support: Funding provided by the Department of Veterans Affairs, Office of Academic Affiliations, Centers of Excellence in Primary Care Education.

First Name: Michael

Last Name: Soh

Degrees: MA MD Ph.D etc:: Ph.D

Company Affiliation: Greater Los Angeles VA Healthcare System

ID: 360
Predictors of nonmedical prescription opioid use in adolescents

Junhan Cho, University of Southern California

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Adolescent

Abstract: AIM: In the last decade, nonmedical prescription opioid use has become a national health crisis. Relevant predictors of misuse of opioid drugs are poorly defined in the adolescent population. This study investigated prospective associations of substance use and psychiatric comorbidities with nonmedical prescription opioid use during adolescence. METHODS: High school students (N=3,396) in Los Angeles, CA completed 8 semiannual surveys from 9th to 12th grade. At each assessment, participants reported their lifetime and past 6-month substance use (i.e., marijuana, combustible cigarettes, e-cigarettes, alcohol, prescription stimulants, tranquilizers/sedatives, prescription opioid) and psychiatric symptoms (i.e., depression, anxiety), which were dichotomously coded (yes/no). We focused on students who reported never using opioids at baseline (N=3,224) and ran logistic random effect regression models to evaluate whether lifetime substance use and psychiatric symptoms at the first semester of 9th grade were associated with likelihood of past 6-month use of nonmedical prescription opioid over follow-up assessments. RESULTS: Among total enrollees, 3.4% (n=116) of students reported lifetime nonmedical opioid use at baseline, and the percentage grew to 18.5% (n=629) by the final semester of senior year. In the adjusted model including sociodemographic covariates and all baseline predictors, adolescents reporting baseline use of marijuana (OR[95%CI] = 1.86[1.34−2.61]), e-cigarettes (OR[95%CI] = 1.62[1.21−2.18]), alcohol (OR[95%CI] = 1.80[1.36−2.38]), prescription stimulants (OR[95%CI] = 2.85[1.48−5.51]), and tranquilizers/sedatives (OR[95%CI] = 1.83[1.08-3.11]) exhibited an increased likelihood of nonmedical prescription opioid use across follow-ups. In addition, depressive symptoms were prospectively associated with a 54% increased likelihood of nonmedical opioid use (OR[95%CI] = 1.54[1.19−1.98]). Cigarette use and anxiety symptoms were not significantly associated with nonmedical opioid use (ps>.11). CONCLUSION: During adolescence, substance use and depressive symptoms appear to be significant factors predicting subsequent use of nonmedical prescription opioids. Future policy aimed at curtailing opioid misuse in adolescents must consider interventions targeting youth with this clinical constellation of comorbidities.

Financial Support: National Institutes of Health Grant (R01-DA033296)

First Name: Junhan

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Degrees: MA MD Ph.D etc:: Ph.D

Company Affiliation: University of Southern California

ID: 361
An unsanctioned supervised consumption service in the United States: Data from the first three years of operation

Peter Davidson, University of California San Diego

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Prevention

Abstract: Aim Supervised Consumption Services (SCS) for people who inject drugs (PWID) are designed to reduce overdose deaths and infectious disease transmission, link them to other clinical, social, and drug treatment services, and reduce social nuisance caused by public drug use. Over 100 legally authorized SCSs exist in 10 countries. One SCS has operated in the United States since September 2014 without formal legal authorization. We describe quantitative and qualitative data on use of this facility by PWID. Methods Quantitative survey data collected from every individual using the SCS to inject drugs from September 2014 to October 2017, and qualitative interviews conducted with 23 individuals using or working at the site between June and August 2016. Results The SCS was used for 4,623 injecting events during the study period. Six overdoses occurred, with all being reversed successfully by staff using naloxone. Over 90% of PWID reported that if not at the site they would be injecting in a public restroom, street, park, or parking lot. Over 80% reported needing to rush injections when not at the site. Qualitatively, PWID reported that access to the site had increased their safety and reduced their need to use drugs in public spaces. Staff reported the 'underground' nature of the site limited the number of people they could serve and their ability to serve the mentally ill out of fear of disclosure and possible legal sanction. Conclusion This preliminary work supports the suggestion that SCS facilities can improve safety for PWID and reduce nuisance to surrounding communities, even when operated on a limited scale restricted by concerns about legal consequence. These data support the argument that a rigorous trial of an SCS should be conducted in the United States.

Financial Support: The qualitative component of this work was supported by a gift from Laura and John Arnold.

First Name: Peter

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Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: University of California San Diego

ID: 362
Patterns of cigarette, e-cigarette, and cannabis use among adult smokers in primary care

Johannes Thrul, Johns Hopkins Bloomberg School of Public Health

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Behavior

Abstract: Aim: Poly-use of tobacco, cannabis, and electronic cigarettes (e-cigs) is an emerging problem in the general population, but no studies have examined the prevalence and patterns of poly-use in a primary care. Methods: We analyzed data from a randomized controlled trial of a tablet intervention to increase provider delivery of the 5As (i.e. Ask, Advise, Assess, Assist, and Arrange) for smoking cessation in 3 diverse primary care clinics in San Francisco, CA. A total of 713 current cigarette smokers (mean age = 50.6, SD=11.1; 36.6% female) self-reported information on current e-cig use (past 30 days) and cannabis use (past 3 months). We classified participants into 4 user groups: (1) Cigarettes only, (2) Cigarettes and e-cigs, (3) Cigarettes and cannabis, and (4) Cigarettes, e-cigs, and cannabis, and examined correlates of use. Results: About one third of the smokers (30.6%) were currently using cannabis and fewer were currently using e-cigs (11.2%) or all three products concurrently (10.4%). Cigarette only smokers did not differ from dual and poly-users by cigarette smoking behavior and motivation to quit. There were significant differences in self-reported receipt of 5As smoking cessation counseling with dual cigarette and cannabis users and poly users reporting a lower likelihood of having follow-up arranged and having received all 5As (p
Financial Support: NIDA R01 DA034253 TRDRP 25FT-0009

First Name: Johannes

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Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Johns Hopkins Bloomberg School of Public Health

ID: 363
Reconsolidation of cocaine reward memory requires NMDA-GSK3 signaling

Xiangdang Shi, Lewis Katz School of Medicine at Temple University

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Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Stimulants

Topic: Neurobiology

Abstract: Aims: Reconsolidation of cocaine reward memory can be attenuated by inhibition of glycogen synthase kinase-3 (GSK3). GSK3β is a critical regulator of the balance between NMDA receptor- dependent LTD and LTP which is essential for learning and memory. This study investigated the roles of NMDA receptors in the reconsolidation of cocaine contextual reward memory. Because the amygdala mediates reconsolidation of drug-cue memories, the regulation of GSK3β activity and NMDA receptors in the amygdala in response to cocaine memory retrieval was investigated. Methods: Adult male CD-1 mice underwent cocaine place conditioning for 8 days and were tested for place preference on day 9. Twenty-four hours after the test for place preference, mice were confined to the compartment previous paired with cocaine in a drug-free state for 10 minutes to reactivate cocaine-associated memories. Results: Western blotting indicated that levels of phosphorylated GSK3βSer9 were significant decreased ($p < 0.01$), while levels of p-GluN2A and p-GluN2B were significantly increased ($p < 0.05$) in the amygdala after reactivation of cocaine cue memories. Administration of the NMDA receptor antagonist MK-801 (0, 0.03, 0.3 mg/kg) immediately after recall of a cocaine memory dose-dependently disrupted its reconsolidation as evidenced by attenuation of the established place preference when re-tested 24 hours and 7 days later ($F_{2,42} = 10.92$, p

Financial Support: Supported by NIH/NIDA R01 DA043988 (EMU), P30 DA 013429 (EMU)

First Name: Xiangdang

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Degrees: MA MD Ph.D etc:: Ph.D

Company Affiliation: Lewis Katz School of Medicine at Temple University

ID: 364
Daily patterns of marijuana and alcohol co-use among individuals with alcohol and cannabis use disorders

Jane Metrik, Brown University School of Public Health

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Other

Abstract: Aims: To examine daily associations between marijuana and alcohol use and the extent to which the association differs as a function of cannabis use disorder (CUD) and/or alcohol use disorder (AUD) diagnosis. Methods: Timeline Followback interview data collected in a study of veterans (N = 127; mean age = 30.0) recruited from a Veterans Affairs hospital who reported at least one day of co-use of marijuana and alcohol in the past 180 days (22,860 observations). Participants reported 40% marijuana use days, 28% alcohol use days (15% heavy), with 37% meeting DSM-5 criteria for CUD, 40% for AUD, and 15% for both. Marijuana use (dichotomous) on a given day was used to predict a three-level drinking variable (heavy: gender-adjusted ≥ 5/4 drinks; moderate: 1 to 5/4 drinks; or None: 0 drinks). Categorical 4-level variable: no diagnosis, AUD, CUD, or both, as measured by the SCID-NP, was tested as a moderator of the marijuana-alcohol relationship. Results: Multilevel modeling analyses demonstrated that participants were more likely to drink heavily compared to moderately ($\beta = .83$, $p < .001$, OR = 2.29) and moderately compared to not drinking ($\beta = .45$, $p < .001$, OR =1.57) on marijuana use days relative to non-use days. On marijuana use days, those with AUD and those with AUD+CUD were more likely to drink heavily ($\beta = .67$, $p < .01$, OR = 1.95; $\beta = .94$, $p < .001$, OR = 2.56, respectively) but those with CUD were less likely to drink heavily ($\beta = -1.13$, $p < .001$, OR = 3.20) compared to moderately; non-significant differences between any vs. moderate drinking in interaction models. Conclusions: Heavy drinking occurs on days when marijuana is also used. This association is particularly evident in individuals diagnosed with both alcohol and cannabis use disorders and those with alcohol use disorders but not those with only cannabis use disorders.

Financial Support: R01 DA033425 (Metrik, Borsari), T32 AA007459 (Gunn)

First Name: Jane

Last Name: Metrik

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Brown University School of Public Health

Contact Title: Assistant Professor of Beh. and Social Scie.

ID: 365
Effects of sweet-flavored e-cigarettes on smoking reinstatement and tobacco withdrawal symptoms in nicotine-deprived smokers

Nicholas Goldenson, University of Southern California

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Dependence

Abstract: Aim: E-cigarettes could potentially help smokers reduce or quit smoking; identifying e-cigarette product characteristics that prevent relapse during abstinence may inform clinical recommendations and regulatory policies designed to decrease smoking. Sweet flavored e-cigarettes have been shown to enhance e-cigarette product appeal, and may help reduce smoking. In this within-subjects laboratory model of smoking relapse, we hypothesized that the administration of a sweet-flavored e-cigarette (vs. tobacco-flavored) would decrease motivation to smoke and self-reported tobacco withdrawal symptoms following overnight tobacco abstinence. Methods: E-cigarette-naïve daily smokers (N=33; 24.2% female; mean age=54.7) attended two laboratory sessions after 16-hours of tobacco abstinence during which they self-administered 10 puffs of an experimenter-provided recent-generation e-cigarette (with nicotine [3 mg/mL]) that was either sweet- or tobacco-flavored. Motivation to smoke was assessed with a behavioral task in which participants chose between smoking and earning money. Participants earned money for each five minutes they delayed smoking; once beginning smoking they could purchase up to eight cigarettes. Nicotine withdrawal symptoms were assessed with subjective measures. Multilevel models tested differences between the sweet and tobacco flavor conditions on all smoking and withdrawal symptom outcomes. Results: There were significant differences in motivation to smoke between the two flavor conditions. Participants were more likely to delay smoking (any delay [≥ 1 minute] vs. no delay [0 minutes]; OR [95% CI]=5.34[1.61, 17.71]) and smoke fewer cigarettes (smoke ≤1 cigarette vs. smoke ≥ 2 cigarettes; OR[95% CI]=3.54[1.25, 10.00]) after using the sweet-flavored (vs. tobacco-flavored) e-cigarette. There were no significant differences in subjective withdrawal symptoms between the flavor conditions (ps=0.27–0.99). Conclusion: Sweet-flavored (vs. tobacco-flavored) e-cigarettes may affect motivation to reinstate smoking in nicotine-deprived smokers. Additional research is needed to determine if e-cigarettes are viable cessation aids and to extend this assessment of flavored e-cigarettes to the wide variety of flavorings currently available on the market.

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First Name: Nicholas

Last Name: Goldenson

Degrees: MA MD Ph.D etc:: BA

Company Affiliation: University of Southern California

ID: 366
Use of opioids and stimulants by people who inject drugs: A multi-stage systematic review and meta-analysis of global evidence

Amy Peacock, National Drug and Alcohol Research Centre

Abstract Category: Literature Review

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: Background: Illicit drugs vary in their risk of acute and chronic harms, and this risk may be elevated by intravenous use. The objective of this systematic review was to compute country, regional, and global estimates of the proportion of people who inject drugs (PWID) reporting intravenous use of heroin, pharmaceutical opioids, cocaine and methamphetamine. Methods: This multi-stage systematic search involved searching peer-reviewed databases (MEDLINE, Embase, PsycINFO), grey literature, and data requests to international experts and agencies. Data published January 2008 to June 2017 were extracted on the proportion of PWID samples reporting any injection of each drug and main drug injected. These proportions were pooled via meta-analysis to generate country, regional and global estimates. Results: From 55,671 sources reviewed, we extracted data from 232 studies. Globally, the greatest proportion of PWID reported any injection of heroin in the past 12 months (79.7%, uncertainty interval [UI] 69.8-86.7%), followed by pharmaceutical opioids (30.6%, UI 27.3-34.2%), cocaine (27.8%, UI 24.4-31.7%), and methamphetamine (15.7%, UI 9.9-22.8%). There was substantial geographic variation in estimates of use. Estimates of heroin and pharmaceutical opioids as the main drug injected by PWID were available for 15 countries, with six countries (Canada, India, Libya, Lithuania, Philippines, and Ukraine) showing a greater pooled proportion reporting pharmaceutical opioids. Certain regions (e.g., Caribbean, Central Asia, Latin America, Sub-Saharan Africa) were characterised by a lack of data. Conclusion: Trends in the types of drugs injected vary geographically, most likely reflecting illicit availability. Surveillance efforts are needed to address the paucity of data in certain regions. Such efforts would provide valuable information regarding the types of drugs injected to inform tailored interventions.

Financial Support: Funding: Funding was provided by the Australian National Drug and Alcohol Research Centre, University of New South Wales. The National Drug and Alcohol Research Centre at the University of New South Wales is supported by funding from the Australian Government under the Substance Misuse Prevention and Service Improvements grant fund.

First Name: Amy

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Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: National Drug and Alcohol Research Centre

ID: 367
Opioid involvement in intentional and unintentional poisonings: The moderating effect of poisoning severity

Sarah Cercone Heavey, University of Rochester Medical Center

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: Aim Opioids are responsible for a growing number of both unintentional (accidental) and intentional (suicidal) overdoses. The present research examines opioids in intentional and unintentional poisonings over time and whether poisoning severity has a moderating effect. Methods Data are from the University at Rochester Medical Center's registry of all toxicology-related visits (N=4,320), 2011–2016. Logistic regressions explore associations with poisonings that involved opioids as a primary agent (yes/no). Intentionality, poisoning severity score [(PSS; low and high), and year were included as independent variables. An interaction between PSS and intentionality was included to determine whether PSS has a moderating effect. Results In the bivariate model, intentional poisonings were less likely to involve an opioid as a primary agent (OR=0.42, 95% Confidence Interval: 0.36, 0.48; p < 0 .001). When year was added, intentional poisonings were still less likely to have an opioid as a primary agent overall (OR=0.42, 95%CI: 0.36–0.48; p < 0 .001), however, 2013 and 2014 were both significantly more likely to involve opioids for intentional and unintentional poisonings [(2013 OR=1.91, 95%CI: 1.43–2.55; p < 0 .001) and (2014 OR=1.97, 95%CI: 1.48–2.62; p < 0 .001)]. There was a significant interaction with PSS, such that unintentional poisonings had similar likelihood of opioid involvement across all PSS levels, but intentional poisonings had significantly greater likelihood of opioid involvement at greater PSS scores [High PSS OR=3.71, 95%CI: 2.44, 5.63; p < 0 .001; Low PSS OR=1.0 [ref]). Conclusions Results suggest complexity in opioid-related poisonings. While overall intentional poisonings were less likely to involve an opioid than unintentional poisonings, both intentional and unintentional poisonings were more likely to involve opioids in 2013 and 2014 specifically. Critically, high poisoning severity was related to greater likelihood of intentional, opioid-related poisonings, indicating a moderating effect.

Financial Support: Sarah Cercone Heavey, PhD, MPH is supported by T32MH020061.

First Name: Sarah

Last Name: Cercone Heavey

Degrees: MA MD Ph.D etc:: PhD, MPH

Company Affiliation: University of Rochester Medical Center

ID: 368
Cannabis in end-of-life care: Examining the attitudes and practices of palliative care providers

Rachel Luba, State University of New York at Albany

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Alternative Medicine

Abstract: Aims: Despite increased interest in cannabis' potential medical uses, research barriers, cannabis legislation, stigma and lack of research dissemination contribute to low adoption in some medical populations. Cannabis use appears low in palliative care settings, with few guidelines or resources available to palliative care providers. The present study sought to examine the attitudes, beliefs, and practices of palliative care providers regarding the use of cannabis for terminally ill patients. Methods: Four hundred twenty-seven palliative care providers completed a one-time online survey assessing their attitudes, beliefs and practices regarding cannabis in end-of-life care. Participants were recruited from the listserv of the American Association of Hospice and Palliative Medicine. Results: Results demonstrated that palliative care providers endorse cannabis for a wide range of symptoms, end-of-life care generally and as an adjuvant medication. Specifically, a majority of participants saw cannabis as beneficial in treating nausea (89.4%), appetite loss (89%), pain (82.7%), sleep problems (68.9%), irritability (58.7%) and emotional suffering (56.5%). A majority of participants (79.4%) also rated cannabis as an effective adjuvant medication. However, there appears to be a gap between these beliefs and actual recommendation or prescription, with only 46.4% of the sample reporting past recommendation of cannabis to terminally ill patients. With regard to state legalization, significant group differences emerged for past recommendation and specific symptom efficacy. Conclusion: There appears to be gap in care, such that providers recognize and accept the utility of cannabis in treating the symptoms of terminal illness but remain somewhat reluctant or unable to recommend or prescribe it. The present study offers insight into a novel topic, and may be used to develop recommendations for healthcare providers and palliative care organizations in narrowing this gap.

Financial Support: none

First Name: Rachel

Last Name: Luba

Degrees: MA MD Ph.D etc:: MA

Company Affiliation: State University of New York at Albany

ID: 369
Gender differences in HIV, anti-HCV and HBsAg prevalence among people who inject drugs – A multi-stage systematic review and meta-analysis of global evidence

Janni Leung, NDARC, UNSW, Australia

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Sex Differences

Abstract: AIM People who inject drugs (PWID) are at elevated risks of blood-borne viral infections (BBV). The risks may be higher in women but there has been no global systematic review of gender risks of BBV infection. We aim to establish the prevalence of HIV, hepatitis C antibody (anti-HCV) and hepatitis B surface antigen (HBsAg) among PWID by gender. METHODS A global systematic review was conducted in accordance with PRISMA guidelines. The percentage of women and men PWID tested positive for BBV were extracted. Gender differences were estimated as a relative risk of women percent positive/men percent positive. RESULTS From 55671 sources reviewed, we extracted data from 1147 eligible records of which 104 reported data on BBV by gender. There were higher risks of BBV infection in women compared to men, which however differed by the type of BBV and location. In North America, women were not at significantly higher risks of BBV infection. In Europe, women PWID were at significantly higher risk of HIV in Ukraine (RR=1.25, 1.16-1.34) and Germany (RR=1.58, 1.04-2.39), but not anti-HCV and HBsAg. There is sparse but emerging evidence that women PWID are at higher risk of HIV in South Asia in India (RR=2.33, 2.19-2.47); Latin America in Mexico (RR=2.93,1.64-5.24); and Sub Saharan Africa in Mauritius (RR=1.58, 1.20-2.08), Nigeria (RR=5.83, 4.23-8.05) and Tanzania (RR=2.69, 2.07-3.50). No data were available for the Caribbean or Pacific Islands regions. CONCLUSION HIV infection may be more prevalent in women who inject drugs compared to their male counterparts, but there is between and within regional variation in this finding. This trend may be due to greater sexual risk exposure among women PWID. There is a need to develop gender-sensitive harm reduction and HIV prevention services for the particularly marginalised population of women who inject drugs.

Financial Support: Funding was provided by the Australian National Drug and Alcohol Research Centre, University of New South Wales.

First Name: Janni

Last Name: Leung

Degrees: MA MD Ph.D etc:: Ph.D

Company Affiliation: NDARC, UNSW, Australia

ID: 370
Leveraging the patient-counselor relationship to reduce sexual risk behavior: Results from a multi-site study in substance use disorder treatment programs

Mary Hatch-Maillette, University of Washington Alcohol & Drug Abuse Institute

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Behavior

Abstract: Aims Substance use disorder (SUD) treatment presents an opportunity to reduce patients' HIV- and HCV-related sexual risk. However, counselors often lack confidence or skill in discussing sex-related topics. This study tested both counselor- and patient-level interventions to reduce patient sexual risk. Counselor outcomes comparing Standard (2 hour) to Enhanced (Standard plus 8 hours plus coaching) training have been previously reported. Enhanced counselors showed greater changes than Standard counselors in HIV Knowledge, Self-Efficacy to discuss sex with patients, and in skills in a mock-patient interview. Patient outcomes are reported here. Method In a 2 x 2 randomized clinical trial at two medication-assisted and one outpatient psychosocial treatment programs, patients (N=478) completed a sexual risk assessment, and, within the two counselor training conditions, were randomized to receive a personalized feedback report (PFR) or no-PFR. Counselor Standard training was an overview of the study and PFR. Enhanced training provided skills for discussing sex and the PFR. Patient data were collected at baseline, 3- and 6-months. Results Preliminary findings on 317 patients with 3- and 6-month follow-up (FU) data (n=166 PFR, n=151 no PFR) are, that, 1) Relative to baseline, PFR patients had less unsafe (condomless) sex at 3- and 6-mo FU vs no PFR, and Enhanced patients reported less unsafe sex at 6-mo FU than those with a Standard-training counselor. 2) PFR Patients reported more discussions about sex with their counselors at 6-mo FU vs no-PFR patients, relative to BL, and Enhanced patients had more discussions of sex at 6-mo FU than Standard patients. Conclusions This study demonstrates that treatment-related change in unsafe sex can be increased through either providing patients with assessment and feedback regarding their sexual behavior, or through training SUD counselors to more skillfully talk about sex with their patients.

Financial Support: Supported By: NICHD R01 HD078163

First Name: Mary

Last Name: Hatch-Maillette

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: University of Washington Alcohol & Drug Abuse Institute

ID: 371
Mood, meth, and sex: Latent growth curve modeling results from a randomized trial

Eileen Pitpitan, University of California San Diego

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Stimulants

Topic: Sex Differences

Abstract: AIM: Methamphetamine (meth) use poses risk for HIV and other STIs. There is robust evidence that meth use increases risk behavior, like condomless sex. Gender differences have been found among women and men who use meth, and there is a high degree of interconnectedness between meth use, depression, and condomless sex. The aims of the current study are to evaluate the efficacy of a theory-based, tri-focal intervention designed to reduce depression, meth use, and condomless sex among women and men, and to examine gender as a moderator of efficacy. METHODS: A total of 432 HIV-negative women and men who use meth participated in a two-arm randomized trial and completed baseline and follow-up assessments across 12 months. We used latent growth curve modeling techniques to analyze the data. RESULTS: Results showed that while all participants exhibited reductions in depression ($t = -9.73$, p
Financial Support: This project was funded by National Institute of Mental Health grant R01MH061146. Preparation of this manuscript was supported by a Mentored Career Development Award from the National Institute on Drug Abuse (K01DA036447).

First Name: Eileen

Last Name: Pitpitan

Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: University of California San Diego

ID: 372
Effects of chronic cocaine self-administration and N-acetyl cysteine treatment on cognitive behavior and cocaine reinstatement in nonhuman primates

Marc Kaufman, McLean Hospital, Brain Imaging Center

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Stimulants

Topic: Behavior

Abstract: Aims Cognitive deficits (e.g., impulsivity) associated with long-term cocaine use may facilitate relapse during abstinence. Surprisingly, few studies have documented relationships between long-term cocaine-taking behavior and cognitive impairments in laboratory animals. Our experiments aimed to evaluate whether chronic cocaine self-administration and abstinence alter performance on touchscreen-based cognitive assays of learning (repeated acquisition) and cognitive flexibility (discrimination reversal). We also assessed whether daily saline (N=3) or N-acetylcysteine (NAC, 10 mg/kg, i.m., N=3) modified cocaine-taking behavior and its reinstatement. Methods Six squirrel monkeys were trained in a touchscreen chamber to discriminate between two simultaneously-presented stimuli (acquisition). Once mastered, subjects re-learned the discrimination with the contingencies switched (reversal). Discrimination acquisition and reversal then continued with novel daily stimulus pairs until performance was stable. Subjects were then trained to self-administer IV cocaine under a second-order FR schedule in daily sessions. A dose-effect function was determined, and the dose yielding the highest daily intake (~3 mg/kg) was then available for daily self-administration. Touchscreen task performance was assessed after every 30 sessions of cocaine self-administration over 9 months and, subsequently, after a 30-day abstinence period. NAC effects on cocaine-reinforced responding were examined during cocaine self-administration and reinstatement conditions. Results Results show that numbers of discrimination-learning trials correlated positively with self-administered cocaine dosages. Learning and reversal were impaired after 30 sessions of IV cocaine self-administration but touchscreen performance steadily improved and, after 120 sessions of cocaine self-administration, did not differ from baseline. Performance following 1 month of cocaine abstinence closely approximated baseline levels. NAC treatment did not alter cocaine intake but, compared to saline-control subjects, significantly enhanced extinction and reduced reinstatement behavior. Conclusions Thus, self-administered cocaine markedly impairs discrimination learning and cognitive flexibility, but these deficits diminish over time. Additionally, NAC hastens extinction learning and dampens reinstatement behavior, supporting the hypothesis that NAC or similar-acting compounds may be useful relapse-prevention agents.

Financial Support: R21DA039301 K01DA035974 K01DA039306

First Name: Marc

Last Name: Kaufman

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: McLean Hospital, Brain Imaging Center

Contact Title: Assistant Professor of Psychiatry

ID: 373
Anticipated vs. actual postpartum contraceptive use among pregnant cigarette smokers

Sarah Heil, University of Vermont

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Perinatal

Abstract: AIM Smoking during pregnancy is the leading preventable cause of poor pregnancy outcomes. Efforts to prevent smoking-exposed pregnancies have focused almost exclusively on trying to help pregnant smokers quit, with little attention paid to the fact that more than half of these pregnancies are unintended. Correct and consistent use of effective contraception prevents unintended pregnancy, but little is known about contraceptive use specific to female smokers. To address this, the present study examined the contraceptive methods pregnant smokers were planning to use after delivery as compared to the methods they actually used once postpartum. METHODS Data were collected from pregnant cigarette smokers enrolled in a clinical trial for smoking cessation. At an assessment conducted at approximately 28-weeks gestation, they were asked what birth control methods they planned to use after delivery. At another assessment conducted at approximately 8-weeks postpartum, they were asked what birth control methods they had used since delivery; the 8-week assessment was targeted because contraception is typically discussed and dispensed at a doctor's visit scheduled around 6 weeks postpartum. RESULTS Initial data are from 25 women. Prior to delivery, 14/25 (56%) reported they planned to use one of the most effective contraceptive methods (intrauterine device (IUD), implant, or sterilization) and only 1/25 (4%) reported not planning to use birth control after delivery. After delivery, only 7/25 (28%) reported using one of the most effective methods and 6/25 (24%) reported not using any birth control since delivery. CONCLUSIONS These preliminary results suggest a substantive inconsistency between the contraceptive methods pregnant smokers plan to use and those they report using. More research is needed to further these findings and to better understand contraceptive use in this vulnerable population as another method for reducing smoking-exposed pregnancies.

Financial Support: R01HD075669, R01DA036670

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Last Name: Heil

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: University of Vermont

ID: 374
A randomized controlled trial of prison-initiated buprenorphine: Longitudinal analysis of HIV-risk behaviors

Thomas Blue, Friends Research Institute

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Behavior

Abstract: Aims: To examine self-reported HIV-risk outcomes collected at study entry (in prison), and 1, 3, 6, and 12 months post-release for opioid-dependent adults participating in a randomized controlled trial of buprenorphine/naloxone initiated in prison versus the community, followed by community treatment referral. Four outcomes were examined – number of times in the last 30 days: (1) having sex without a condom; (2) injecting drugs; (3) using dirty needles; and (4) sharing works. Methods: This longitudinal analysis examines the effects of buprenorphine initiated in prison (N=101) vs. immediately after release (N=101), gender (male N=142; female N=60), and community treatment initiation. Participants were 202 prisoners who had pre-incarceration DSM-IV diagnoses of opioid dependence. A hierarchical, overdispersed Poisson model was examined for each outcome. In the level-1 model the outcome variable was predicted by days since baseline. In the level-2 model, the intercept was predicted by participant gender, and the slope of time was predicted by participant gender, treatment condition, and whether or not the participant entered community treatment. Results: Initiating buprenorphine in the community versus in prison predicted a greater linear decrease in sex without condoms. However, there was a significant interaction effect between condition and community treatment entry. Those who initiated buprenorphine in prison and entered community treatment had the greatest linear decrease in risky sex on average. There was also a significant effect of community treatment entry on the linear change in injection drug use. On average, those who entered community treatment had a greater linear decrease in injection drug use over time than those who did not. Conclusions: The initiation of buprenorphine in prison reduced the incidence of sex-related risk, but only when paired with community treatment after release. Entry into community-based buprenorphine treatment reduced the frequency of injection drug use on average.

Financial Support: Funded by NIDA: Grant Number 5R01DA021579; Study drug (buprenorphine) provided free from Reckitt Benckiser

First Name: Thomas

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Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: Friends Research Institute

ID: 375
Associations between abstinence and reduction in marijuana use and changes in mental and physical health well-being among primary care patients in Los Angeles

Chukwuemeka Okafor, University of California Los Angeles

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Treatment

Abstract: Aims: To determine whether reductions in cannabis use is associated with changes in mental and physical health Well-Being. Methods: Secondary analyses based on data from randomized controlled trial of a brief intervention to reduce risky drug use (ASSIST score 4-26) among low-income, primary care patients of federally qualified health centers in Los Angeles, California (Project QUIT). Differences at baseline and 3-month follow-up in the number of days of marijuana use in the past 30-days was categorized as abstinent, reduced without abstinence and continued or increased use. The primary outcomes were 3-month changes in mental and physical component scores (MCS/PCS) from the Short Form Survey (SF-12; higher scores reflect better well-being). Multiple linear regression models were used to test for associations between the marijuana change groups and changes in MCS and PCS scores. Results: Of 186 participants, mean age was 42.0 years; 63% were male and 63% were non-white. At 3 months, 35% of the sample were abstinent and 23% decreased their marijuana use. In analyses adjusted for baseline age, gender, race/ethnicity and baseline number of days of main drug use and intervention arm, differences were not significant for the MCS in participants who were abstinent [mean change (MC):1.26] and those who decreased (MC: 0.33) compared to those who continued/increased use (MC:2.76; all ps >0.05). Similarly, there were no significant difference in changes in PCS in the abstinent (MC: 2.08) and decreased (MC: 1.90) use groups compared with those who continued/increased use (MC: 0.84; all ps >0.05). Conclusions: In this sample of primary care patients in Los Angeles with illicit drug use, there was a pattern of improvement in mental and physical health well-being within the marijuana use groups from baseline to 3-month, though between-group changes were not statistically significant. Additional investigation from larger samples in other settings is needed.

Financial Support: Prev enting Drug Use in Low Income Clinic Populations'.R01 DA022445-01. CNO is supported by the UCLA Postdoctoral Fellowship Training Program in Global HIV Prevention Research (Currier and Gorbach, PIs); T32MH080634. SS is supported by NIMH P30 058107 – CHIPTS UCLA CFAR grant AI028697

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ID: 376
Opioid-related hospitalizations in an integrated health system

Pooja Lagisetty, University of Michigan

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: Aims: There are over 1 million opioid-related inpatient and ED visits per year, costing upward of $15 billion. Little is known about the nature of these visits and prescription opioid prescribing before and after the hospitalization. We examined the prevalence and dose of opioid prescriptions before and after hospitalization and severity of opioid-related inpatient diagnosis. Methods: We analyzed VA patients with regular pharmacy use during fiscal years 2010-2014 with opioid-related inpatient or ED stays, as defined by ICD-9 codes, using administrative data. We calculated changes in average daily dosages at 1 and 6 months before and after the index visit and stratified the sample by the patient's average dose at 6 months prior to stay (none, 90 MME) and the diagnosis during hospitalization (e.g., opioid dependence, abuse, or poisoning, and heroin-related hospitalization). Results: Our cohort included 32,382 patients hospitalized for opioid-related events. 15,235 (47.0%) patients received opioid prescriptions, excluding buprenorphine and methadone maintenance treatment, in the 6 months prior to hospitalization. This percentage dropped to 30.6% in the month following the stay but was 42.9% in the 6 months after. 57% of these patients received 90MME. Opioid dependence was the most common opioid-related diagnosis (50%), followed by poisoning (33%) and abuse (18%). Only 29 patients receiving prescription opioids prior to hospitalization had a heroin-related event. Conclusion: Even within an integrated health system and centralized pharmacy, opioid prescribing following opioid-related visit drops transiently but returns to nearly pre-visit levels in the following 6 months. Interestingly most visits occur in patients receiving < 5 0MME. Future research to explore concurrent reasons for hospitalizations (e.g., medical, psychiatric) and predictors of inappropriate post-hospitalization prescribing is warranted.

Financial Support: none

First Name: Pooja

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Degrees: MA MD Ph.D etc:: MD, MSc

Company Affiliation: University of Michigan

ID: 377
Cannabis use increases cocaine dependence in female cocaine users but does not increase its progression speed

Yiyang Liu, University of Florida

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Epidemiology

Abstract: Aims: The prevalence of cannabis use ranges from 59% to 89% among cocaine users. In this analysis, we tested the hypothesis that cannabis use increases the risk of cocaine dependence, and the rate of progression from first use of cocaine to the onset of dependence in females who ever used cocaine. Methods: We analyzed a sample of 1,022 ever cocaine users from three NIDA/NIAAA-funded studies on out-of-treatment women in a metropolitan urban area. The onset of cocaine use and dependence was assessed using the Substance Abuse Module (SAM). Length of time from first use of cocaine to the onset of dependence was calculated to capture progression rate of cocaine dependence. To ensure temporality, "cannabis use" was defined as initiating the use of cannabis before the onset of cocaine dependence. Chi-square, t-tests and regression models were used. Results: In total, 67% of cocaine users who also reported cannabis use developed cocaine dependence, versus 57% of those who did not report cannabis use. After controlling for age at first cocaine use, race, and study cohort, cocaine users who reported cannabis use were 1.5 times as likely to have cocaine dependence as those without cannabis use (95%CI: 1.1-2.1). On average, cocaine users developed cocaine dependence 3 years after first use, and the progression rate did not differ significantly by cannabis use history. Conclusion: Cannabis use increases the risk of cocaine dependence but does not impact its progression rate. To prevent cocaine dependence, interventionists and stakeholders should design programs that target cocaine and cannabis co-use among women. Future studies could examine the association between different cannabis use patterns and risk of cocaine dependence (e.g., quantity of cannabis use, latency to initiate use of each drug.)

Financial Support: Yiyang Liu is funded by the Dean's Scholarship at the University of Florida. Micah Johnson is funded by the NIDA T32 training grant at the UF Substance Abuse Training Center in Public Health from the National Institutes of Health (T32DA035167). The content is solely the responsibility of the authors and does not necessarily represent the official view of the NIH.

First Name: Yiyang

Last Name: Liu

Degrees: MA MD Ph.D etc:: MPH

Company Affiliation: University of Florida

ID: 378
Role of ventral tegmental area serum- and glucocorticoid-inducible kinase 1 (SGK1) catalytic activity and phosphorylation in drug-related behaviors

Marie Doyle, Michigan State University

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Stimulants

Topic: Behavior

Abstract: Aim: Ventral tegmental area (VTA) serum- and glucocorticoid-inducible kinase 1 (SGK1) catalytic activity and phosphorylation at Ser78 are increased by chronic, but not acute, administration of cocaine and morphine; however, the functional significance of these changes in drug-related behaviors remains unclear. Thus, we have created novel viral constructs to overexpress SGK1 mutants in the VTA of adult mice, and we are assessing the impact of altered VTA SGK1 on drug reward. Methods: To evaluate altered VTA SGK1 signaling in adult male c57bl6 mice herpes simplex virus (HSV) constructs were used to overexpress an SGK1 kinase-dead mutant (K127Q) as well as mutants that prevent or mimic Ser78 phosphorylation (S78A, S78D). Vectors were stereotaxically injected into the VTA at established coordinates. To determine SGK1 overexpression on drug reward, mice underwent either a morphine two-bottle choice task (0.2% sucrose and 0.05 mg/ml morphine sulfate or 0.01 mg/ml quinine sulfate) or cocaine conditioned place preference (CPP, 7.5 mg/kg). Results: Intra-VTA infusion of kinase-dead SGK1 (K127Q) significantly ($p < 0$ .05) decreased cocaine CPP and morphine intake. Similarly, prevention of phosphorylation at S78 (S78A) significantly ($p < 0$ .05) decreased cocaine CPP and morphine intake, but, surprisingly, mimicking phosphorylation (S78D) showed no difference from GFP controls. Conclusion: These data suggest that alteration of VTA SGK1 kinase activity and pSer78 are sufficient to modulate drug reward. To fully understand the role of VTA SGK1 in behaviors relevant to addiction, we have developed cre-dependent constructs to overexpress SGK1 mutants in a cell type-specific manner. These studies, along with experiments utilizing a floxed-SGK1 mouse, will determine whether SGK1 activity in VTA dopamine or GABA neurons drives the observed behavioral effects. In summary, our goal is to characterize the role of VTA SGK1 activity in drug-related behaviors in order to assess SGK1's feasibility as a novel therapeutic target for addiction.

Financial Support: T32 NS044928 (MAD), PhRMA Foundation Research Starter Grant (MMR), and R01 DA039895 (MMR)

First Name: Marie

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Degrees: MA MD Ph.D etc:: BS

Company Affiliation: Michigan State University

ID: 379
Emotion dysregulation in young smokers: Link to connectivity of the raphe nuclei with the amygdala

Paul Faulkner, University of California Los Angeles

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Imaging

Abstract: AIMS: Smoking-related disease is the greatest cause of preventable death in the U.S., and treatments to promote smoking cessation have limited success. Increasingly, tobacco-related serotonergic dysfunction, particularly involving the raphe nuclei, is thought to hinder cessation efforts. Given the role of the serotonin system in influencing affect, serotonergic effects of smoking may have important implications for tobacco-related difficulties in emotion regulation, which can predict relapse during cessation. Successful emotion regulation involves downregulation of amygdala reactivity by 'cognitive control' regions including the inferior frontal gyrus (IFG) and orbitfrontal cortex (OFC); however it is unknown whether the relationship between emotion regulation and amygdala-cognitive control region connectivity depends on serotonin function. METHODS: Eighteen young smokers (16-21 years old) and 19 aged-matched non-smokers completed the Difficulties in Emotion Regulation Scale (DERS). Participants also underwent resting-state fMRI to determine connectivity of the amygdala with a set of cortical regions determined by meta-analysis to be involved in emotion regulation, including the (IFG and OFC. Connectivity of the raphe nuclei with the amygdala was also examined as an indicator of serotonergic function. RESULTS: Compared to non-smokers, smokers self-reported higher scores on the DERS. Further, smokers displayed a stronger negative correlation between DERS scores and connectivity of the amygdala with the IFG and OFC; this relationship in smokers was positively modulated by connectivity of the amygdala with the dorsal raphe nucleus. CONCLUSION: Smokers show greater difficulty in emotion regulation than non-smokers, potentially due to differences in amygdala-prefrontal cortex connectivity implicated emotion regulation. Further, use of serotonergic medications, such as citalopram or lorcaserin may increase the ability of cognitive control regions to downregulate amygdala reactivity, and thereby help promote smoking cessation.

Financial Support: NIDA-funded R01 (R01DA036487) Phillip Morris contract (20063287)

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Last Name: Faulkner

Degrees: MA MD Ph.D etc:: BSc, MSc, Ph.D

Company Affiliation: University of California Los Angeles

ID: 380
Substance use and high-risk firearm behaviors (HRFBs) among youth treated in an urban Emergency Department: Preliminary findings from Project IntERact

Patrick Carter, University of Michigan

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Prevention

Abstract: AIM: Substance use is a key correlate for firearm violence, a leading cause of death for urban youth. We describe rates/correlates of past 3-month high-risk firearm behaviors (HRFBs) among youth screened in an urban emergency department (ED). Methods: Youth (16-24 y/o) seeking ED treatment completed a computerized screening survey. Validated instruments measured socio-demographics, HRFBs, alcohol/drug use, violence and mental health symptoms. Results: 376 youth were screened (M-age=21; 72% female; 59% African-American; 57% public assistance; 10% treated for an assault-injury), with 17.6% reporting past 3-month high-risk firearm behaviors (HRFBs), including 15% reporting firearm carriage in high-risk situations (e.g., doing a drug deal, drunk/high), 3% reporting firearm discharge in high-risk situations (e.g., drunk/high, committing a crime), and 5% reporting firearm aggression (e.g., threats/use). Among those endorsing past 3-month firearm carriage, youth reported carrying the firearm an average of 8 times (SD 7.7). Rates of alcohol (38%-vs.-24%,p < 0 .05), marijuana (67%-vs.-40%,p < 0 .001), and prescription drug (17%-vs-6%,p < 0 .01) misuse, as well as binge drinking (52%-vs-31%,p < 0 .01), were higher among youth with HRFB when compared to those without HRFB. Youth reporting HRFBs were also noted to have elevated rates of gang involvement (6%-vs.-1%,p < 0 .01) and community violence exposure (13.4-vs.-8.5,p < 0 .001). No differences were noted for youth with and without HRFBs with regards to either recent criminal justice and/or pro-social activity (e.g., religious, community) involvement. Further, while rates of anxiety (32%), depression (28%), and PTSD (17%) symptoms were high among the entire sample, no differences were noted between those with and without HRFBs. Logistic regression identified factors associated with HRFBs among ED youth, including male sex (AOR=2.38), marijuana misuse (AOR=2.51), prescription drug misuse (AOR=2.61), and community violence exposure (AOR=1.04). Conclusions: Rates of HRFBs, as well as co-occurring substance use, are high among urban youth seeking ED treatment, highlighting the need for interventions addressing these risk behaviors. Prevention efforts should also focus on addressing violence exposure and firearm access/carriage in high-risk situations.

Financial Support: NIH/NIDA K23DA039341; NIH/NCATS UL1TR000433

First Name: Patrick

Last Name: Carter

Company Affiliation: University of Michigan

ID: 381
Clusters of substance use and HIV risk behaviors among people who inject drugs in Kazakhstan

Phillip Marotta, Columbia University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Prevention

Abstract: Aims: This paper elucidates clusters of drug and alcohol use among a sample of people who inject drugs (PWID) in Almaty, Kazakhstan. Methods: A latent class analysis was performed on 510 PWID who participated in a clinical trial of a couples-focused HIV prevention intervention using eight drug and alcohol use indicators (binge drinking, opium use, cannabis, sedatives, tranquilizers, opioid pain-relievers, drinking alcohol immediately before using heroin, and mixing drugs with heroin). We hypothesized that HIV/HCV infection, substance use severity, structural conditions (poverty, food insecurity, and drug crime conviction), injection drug risk behaviors (syringe and equipment sharing) and sexual behaviors (unprotected sex with study partners and others) would be significantly associated with latent classes of poly-drug use. A two-level multinomial logistic model with shared couple-level random effects accounted for the dyadic structure of the data. Results: We identified 3 latent classes consisting of 37.7% (192) in an alcohol/marijuana use class, 15.6% (80) in a pain-reliever/sedatives class, and 46.7% (238) in a high poly-drug use class involving use of all drugs. Multinomial regression models supported study hypotheses by identifying significant relationships between greater drug use severity (RRR=1.43, SD=.11, p
Financial Support: Financial Support: Research for the parent study was funded by a grant from the National Institute on Drug Abuse (R01 DA022914) to Nabila El-Bassel and data analysis for this presentation was partially funded by a T-32 Training Grant from the National Institute on Drug Abuse (1T32DA037801).

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Degrees: MA MD Ph.D etc:: MPH MS

Company Affiliation: Columbia University

ID: 382
Engaging in the HIV care continuum: Do opioid users differ from those who use other substances?

Lacey Critchley, University of Miami

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: AIDS/Immune

Abstract: Aim. Highly effective antiretroviral therapy (ART) has focused attention on how to best engage people living with HIV (PLWHIV) in care. Substance users remain a difficult group to engage and retain in care often with uncontrolled HIV as a result. It is not clear whether different types of substance use contribute to disengagement from care uniquely. Given the current focus of the opioid epidemic, this study seeks to determine if opioid users differ in their engagement in HIV care compared to those who use other substances. Methods. This study is a secondary analysis from a NIDA CTN study. All 801 participants (67% male; 75% Black, non-Hispanic; mean age 44.15) had diagnosed HIV and reported substance use. Participants were recruited from 11 US hospitals for a RCT to improve engagement in HIV care and virologic outcomes. Participants reported history of HIV care and ART prior to intervention. Models compared those who reported opioids as their main problem drug to those who reported any other substance on their engagement in care. Models controlled for age, sex, race, education, income, any previous substance use treatment, and study site. Results. Of the 801 participants, 95 (11.86%) reported opioids (heroin, prescribed/illicit methadone/LAAM, or other opiates/analgesics) as their main problem drug. Opioid users were less likely to have ever engaged in HIV care, OR = 0.33 (95% CI = 0.15, 0.75). No differences were found for ART, previous 6-month HIV care, and viral suppression (ps>0.05). Conclusions. In this sample, opioid users are less likely to have ever been engaged in HIV care compared to those who use other substances. More research is needed to determine the etiology of this relationship. Nonetheless, these findings may be important as we begin to unravel the implications of the opioid epidemic, particularly as it relates to engaging PLWHIV in HIV care.

Financial Support: This study was funded by National Institutes of Health (NIH) grant: U10-DA01372011 (Project HOPE -- Hospital Visit as Opportunity for Prevention and Engagement for HIV-Infected Drug Users; Metsch). The content is solely the responsibility of the authors and does not necessarily represent the official views of the NIH.

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Company Affiliation: University of Miami

ID: 383
Willing to work but not to wait: Individuals with alcohol use disorder show increased delay discounting, but not effort discounting, compared to social drinkers

Quan Phung, Virginia Tech Carilion Research Institute

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Alcohol

Topic: Behavior

Abstract: Aim: Effort discounting refers to the devaluation of a reward given increasing effort required to obtain it. Similarly, delay discounting refers to the devaluation of a reward given increasing delays. Individuals with substance use disorder show higher rates of delay discounting, potentially exacerbating short-term positive reinforcement at the expense of long-term consequences. This study explores how effort discounting compares to delay discounting behavior among alcohol users as well as how these preferences change between monetary and alcohol rewards. Methods: 100 participants completed an online survey through Amazon Mechanical Turk. Using DSM-V criteria, participants were classified as social drinkers or having alcohol use disorder (AUD). All participants completed four tasks, in a randomized order, involving delay or effort discounting, in which the reward was money or alcohol. A follow-up experiment (n = 423) added the alcohol purchase task to assess alcohol valuation. Results: Individuals with AUD discounted future money and alcohol significantly more than social drinkers ($p < 0.05$). However, individuals with AUD were willing to perform more effort for alcohol compared to social drinkers ($p = 0.0289$). No significant difference emerged between groups regarding effort for monetary rewards. The follow-up experiment demonstrated that valuation of alcohol differed between the two groups, with increased alcohol valuation being related to increased effort to obtain alcohol in the AUD group. Conclusion: These results suggest that individuals with AUD were less willing to wait for money or alcohol, compared to social drinkers. While both groups were willing to work for money, the AUD group was willing to exert more effort to obtain alcohol. Together, these results paint a picture of individuals with AUD as both more impulsive and willing to work to obtain alcohol, contributing to our understanding of risky decision-making and negative outcomes among individuals who abuse substances.

Financial Support: R01AA021529 and Virginia Tech Carilion Research Institute

First Name: Quan

Last Name: Phung

Degrees: MA MD Ph.D etc:: B.A.

Company Affiliation: Virginia Tech Carilion Research Institute

ID: 384
Kratom and its mitragynines in the opioid crisis: A path to or away from opioids?

Jack Henningfield, Pinney Associates, Inc.

Abstract Category: Theoretical/Commentary

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Other

Abstract: AIM: Assess the potential of mitragynine-containing leaves of the kratom tree to substitute for opioids that were used for pain or addiction, based on kratom use history, surveys, and basic research. METHODS: Each author will contribute to an assessment of the neurobiology, abuse potential, trends in use and effects of use, and place for alternative approaches to pain management, to assess the potential of kratom to serve as a strategy to cease opioid use. RESULTS: Kratom refers to the leaves (e.g., powdered) and leaf extracts (e.g., tea-like brews and manufactured extracts), from a tree, indigenous to Southeast Asia, in the Rubiaceae family, which includes Coffea. Two of its mitragynine alkaloids can provide both caffeine-like alerting and focusing effects and opioid-like effects including relief of pain, diarrhea, cough, and modulation of mood, but with little respiratory depression, and low abuse potential compared to morphinans. The neurobiology and surveillance-informed reasons for and consequences of use, suggest a potential for substitution for opioids, whether used to manage pain or due to addiction. Experience in pain management has demonstrated that some people are able to find satisfactory benefit by natural alternatives to opioids suggesting such potential for kratom. Kratom is also used by many people to manage symptoms of stress, anxiety, and depression, and to improve alertness and focus. Kratom does not appear highly appealing as an opioid-like euphoriant. CONCLUSIONS: Surveys indicate that some of the more than 3 million US kratom consumers in 2017 were using kratom as a path away from opioids. The neurobiology and low abuse potential of kratom support the potential viability of this such use. Surveillance suggests that kratom is an asset, though of not yet determined magnitude, in reducing opioid use. Kratom may provide a harm-reducing substitute for opioids used for pain or due to addiction.

Financial Support: none

First Name: Jack

Last Name: Henningfield

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Pinney Associates, Inc.

Contact Title: Vice-President Research and Health Policy

ID: 385
Effects of dextromethorphan on nicotine-induced reward, behavioral sensitization, withdrawal signs, and drug seeking-related behavior in rats

Eagle Yi-Kung Huang, National Defense Medical Center

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Nicotine/Tobacco

Topic: Behavior

Abstract: AIM: Tobacco products are addictive, with nicotine serving as the major addictive ingredient. Chronic tobacco use or chronic administration of nicotine alone results in both physiological and psychological dependence. Our previous studies indicated that dextromethorphan (DM) could effectively attenuate dependence of morphine and methamphetamine. Thus, we further investigated the possible effects of DM on nicotine dependence. METHODS: Conditioned place preference (CPP) test was used to examine nicotine-induced rewarding effects as well as the drug-seeking related behavior in rats. Nicotine dependence was induced by continuous subcutaneous infusion of nicotine via an osmotic minipump for 7 days and abstinence was initiated by removal of the pump. Withdrawal signs were observed and quantified. Locomotor activity was measured to determine the behavioral sensitization induced by nicotine. To investigate the activity of mesolimbic dopaminergic neuronal activity in correlation with the effects of nicotine, the animals were sacrificed and the nucleus accumbens (NAc), dorsal striatum (DS) and medial prefrontal cortex (mPFC) were dissected and used to determine the contents of dopamine and its metabolites by HPLC. RESULTS: Our results showed that DM could suppress nicotine-induced rewarding effect and drug seeking-related behavior. In addition, co-administration and post-treatment of DM could both attenuate nicotine withdrawal signs. Moreover, DM could suppress nicotine-induced behavioral sensitization. In neurochemical experiments, co-administration and post-treatment of DM abolished nicotine-induced increase of the DA turnover rate in the mPFC, but not in the NAc and DS. CONCLUSION: These results suggest that DM have a great therapeutic potential in the treatment of nicotine dependence.

Financial Support: The Chih-Ying Plant R&D Foundation

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Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: National Defense Medical Center

ID: 386
Criminal justice referral to medication-assisted treatment among opioid treatment admissions, 2014

Shivani Mantha, Columbia University Mailman School of Public Health

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: Aim: Policy makers have advocated for criminal justice (CJ) referrals to treatment for individuals with opioid use disorder in response to rising opioid overdose rates since 2000. We sought to describe the association between CJ referrals and use of medication-assisted treatment (MAT), an evidence-based intervention, among opioid treatment admissions in the United States. Methods: Data from the 2014 Treatment Episode Data Set (TEDS) included 466,172 treatment admissions with opioids (heroin, non-prescribed methadone, and other synthetic opioids) as the primary substance of abuse. We estimated the proportions of opioid treatment admissions resulting from CJ referrals and those including MAT in the treatment plan, and described the types of treatment used. Finally, we assessed the odds of including MAT in the treatment plan for opioid treatment admissions resulting from CJ vs. other forms of treatment referral using bivariate logistic regression. Results: Of all opioid treatment admissions in 2014, 17.37% were CJ referrals and 26.27% included MAT in the treatment plan. Among opioid treatment admissions resulting from CJ referrals, the most frequent type of treatment used was ambulatory, non-intensive outpatient treatment (48.99%); however, CJ referrals accounted for 34.81% of long-term rehabilitative/ residential opioid treatment admissions. Only 6.44% of opioid treatment admissions with CJ as the source of referral included MAT in the treatment plan. The odds of inclusion of MAT in the treatment plan were 85% lower for CJ referrals compared to other sources of referral (OR=0.1536; 95%CI: 0.1518, 0.1627). Conclusion: Medication-assisted treatment makes up a small proportion of opioid treatment admissions with CJ as the source of referral, suggesting potential unmet treatment need among individuals with opioid use disorder referred to treatment through the CJ system. Further research is necessary to determine the utility of CJ referral to treatment for this population and the association between CJ referral to treatment and opioid overdose.

Financial Support: 1R01DA037866 (Martins).

First Name: Shivani

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Degrees: MA MD Ph.D etc:: BA

Company Affiliation: Columbia University Mailman School of Public Health

ID: 387
Using dynamic contrast enhanced MRI to measure methamphetamine's effects on blood brain barrier permeability

Mudassir Mumtaz, CUNY School of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Stimulants

Topic: Imaging

Abstract: Aims: Preclinical research has demonstrated that drugs of abuse disrupt functioning of the blood-brain barrier (BBB). However, it has not been possible to measure subtle changes in BBB permeability in humans. The purpose of this pilot study was to use dynamic contrast enhanced MRI (DCE-MRI) as a novel method to measure the effects of methamphetamine on the BBB in humans and correlate these with measure of abuse potential. Methods: Participants who met DSM-V criteria for moderate-severe stimulant use disorder were recruited for this inpatient study. Participants completed testing sessions in which either active (30 mg/70 kg) or placebo intranasal (IN) methamphetamine was administered under randomized, double-blind conditions. Participants underwent DCE-MRI scans with gadolinium contrast (1 scan before and 1 scan after drug administration), and the subjective effects of the IN drug were measured. These testing procedures were repeated with the second IN test drug after an abstinence period of at least 24 hours. Results: Five participants completed the study. BBB permeability, as measured by the degree of contrast leakage, did not significantly differ following methamphetamine (4.27 E-06) and placebo (1.81 E-06) administration ($p=0.84$; current data for 3 participants). Although physiological responses (heart rate and blood pressure) were increased by active methamphetamine, ratings of positive subjective effects (e.g., drug "Liking") did not significantly differ from placebo. Discussion: This study was unable to replicate preclinical findings of the effects of methamphetamine on BBB permeability. Research should continue to better understand the effects of drugs of abuse on the BBB, as it may reveal previously unknown neurotoxic consequences of substance use disorders.

Financial Support: Supported by: NIDA grant R21 DA040436 to Dr. Sandra Comer.

First Name: Mudassir

Last Name: Mumtaz

Company Affiliation: CUNY School of Medicine

ID: 388
Preventing injection initiation: The challenge of high frequency initiators among people who inject drugs

Ricky Bluthenthal, Keck School of Medicine University of Southern California

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Epidemiology

Abstract: Background: Injection initiation research highlights the role that people who inject drugs (PWID) play in helping injection-naïve people begin to inject. Prior studies on drug initiators have not differentiated between people who initiate many or few people. Aim: To examine frequency of initiation of others in the last 6 months and factors associated with high frequency (4 or more initiates), low frequency (1-3 initiates) and no initiation among PWID. Methods: Baseline data from 972 PWID in Los Angeles and San Francisco, CA who were recruited for a randomized control trial of an intervention to prevent injection initiation and interviewed about initiation practices, drug use patterns and health risk among other items. Multinomial regression analysis was used to examine factors associated with frequency of initiation in the last 6 months. Results: In the last 6 months, 131 (14%) PWID had initiated 780 people into injection (mean=6 [standard deviation=20.28]; median= 2, interquartile range=1,4). High frequency initiators (26% of sample) assisted with 640 starts (82% of the total). Using multinomial regression analysis with no initiating as the referent group, we found that high frequency initiating was associated drug scene involvement (adjusted odds ratio[AOR]=3.85; 95% confidence interval[CI]=1.14, 11.11), having a paying sex partner (AOR=2.33; 95% CI=1.02, 5.26) and a casual sex partner (AOR=2.27; 95% CI=1.08, 4.76). Lower frequency initiation was associated with having a paying sex partner (AOR=1.82; 95%CI=1.04, 3.23), illegal income source (AOR=2.38 95% CI=1.49, 3.70), non-injection cocaine use (AOR=1.96; 95% CI=1.14, 3.33), non-injection synthetic cathinones use (AOR=3.57; 95% CI=1.16, 11.11), and recent methamphetamine injection (AOR=1.64; 95% CI=1.00, 2.70) in the last 30 days. No demographic variables were associated with either initiation variable. Conclusion: A subpopulation of PWID facilitated a disproportionate number of injection initiations. Qualitative research to understand this subgroup and prevention interventions directed at high frequency initiators are urgently needed.

Financial Support: NIDA grant number R01DA038965.

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ID: 389
Association between methamphetamine psychosis and facial emotion recognition

Shalini Arunogiri, Monash University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Stimulants

Topic: Behavior

Abstract: Aim Previous research has failed to identify non-drug risk markers for the development of methamphetamine-associated psychosis. Impaired cognition and facial emotion recognition (FER) are characteristic of primary psychotic disorders. There is emerging evidence that cognition is associated with psychosis proneness amongst people who use methamphetamine but no studies have investigated facial emotion recognition. We hypothesized that positive psychotic symptoms would be associated with FER and other neurocognitive impairments in people who used methamphetamine regularly; and that this association would not be accounted for by methamphetamine use. Methods This was a cross-sectional study of adult participants using methamphetamine at least weekly (N = 103; 77 male), with no DSM-IV lifetime history of schizophrenia or bipolar disorder, who were assessed for past month positive psychotic symptoms (Brief Psychiatric Rating Scale), verbal memory (Hopkin's Verbal Memory Test-Revised), executive function (Iowa Gambling Task, Delayed Discounting Task), and FER (Ekman's Faces Test). Results FER was significantly associated with positive psychotic symptoms (rho -0.29, p This is the first study to demonstrate that FER is associated with any type of substance-induced psychosis. It suggests that FER may be a promising marker of vulnerability to psychotic symptoms in methamphetamine-using populations, and raises the potential of commonality between substance-induced psychotic symptoms and primary psychotic disorders. Funding The primary author was supported by an Australian National Health and Medical Research Council (NHMRC) Postgraduate Scholarship, by the Windermere Foundation Syd Allen Scholarship, and by the Royal Australian & New Zealand College of Psychiatrists (RANZCP) Research and Education Foundation Grant.

Financial Support: The primary author was supported by an Australian National Health and Medical Research Council (NHMRC) Postgraduate Scholarship, by the Windermere Foundation Syd Allen Scholarship, and by the Royal Australian & New Zealand College of Psychiatrists (RANZCP) Research and Education Foundation Grant.

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ID: 390
Validation of a brief behavioral economic assessment of demand among cigarette smokers

Liqa Athamneh, Virginia Tech Carilion Research Institute

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Behavior

Abstract: Background: Basic and clinical addiction research use demand measures and analysis extensively to characterize drug use motivations. Hence, obtaining an accurate and fast measurement of demand that can be easily utilized in different settings is highly valued. Aim: In the current study, a two versions of a brief single-item cigarette valuation measure, designed to capture cigarette demand, were investigated in a group of smokers who were recruited from an online crowdsourcing platform. The first version determines the maximum price a smoker is willing to pay for 1 cigarette received right now when paid out of pocket, and the second determines the maximum price a smoker is willing to pay for 1 cigarette received right now when paid using a hypothetical $100 gift card received for free. We hypothesized that cigarette demand from these single-item valuation measures would correlate with the demand measures obtained using lengthier, but more standard tasks such as the hypothetical purchase task (HPT). Methods: To test this hypothesis, the single-item demand measures were administered to 119 smokers, along with the HPT, Fagerström Test for Nicotine Dependence (FTND), and The Questionnaire of Smoking Urges (QSU-brief). Results: We found that both items included in the brief valuation measure are positively correlated with FTND scores, breakpoints, Omax, Pmax, and cigarette craving factors 1 and 2, and inversely correlated with the elasticity of demand. Conclusion: These findings suggest that the two versions of the single-item valuation measure is a rapid and viable methods for measuring demand that may provide a useful and efficient tool to capture crucial and distinct aspects of smoking. In addition, the single-item valuation measures may help increase the utility of behavioral demand measures in novel research and clinical settings.

Financial Support: The National Institutes of Health (NIDA) grant R01DA034755

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ID: 391
Social-ecological determinants of health contributing to co-occurring substance use and mental health problems: How do sexual and gender minority young adults' experiences differ from their heterosexual, cisgender counterparts?

Jennifer Felner, San Diego State University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Other

Abstract: Background: Sexual and gender minority (SGM) young adults (YA) are more likely than heterosexual, cisgender YA to use alcohol, tobacco, and other drugs and to experience mental health problems. However, studies examining co-occurrence of substance use and mental health problems among SGM-YA are rare. Qualitative information on how minority stress and other determinants of health manifest across the social ecology to influence co-occurring substance disorders and mental health problems in SGM-YA could aid in refining strategies to combat health inequities among this population. Study Aims: To examine how social-ecological determinants similarly and differentially influence co-occurring substance disorders and mental health problems among SGM-YA and heterosexual, cisgender YA. Methods: Semi-structured, in-depth interviews were conducted with 126 YA (ages 22-34) from across the U.S. with diverse sexual and genders identities from the Growing Up Today Study who reported substance use problems. Interviews were transcribed, coded by two independent coders, and analyzed for emergent themes. Results: Preliminary results indicate that substance use, for both non-SGM-YA and SGM-YA, often co-occurred with mental health problems. SGM-YA cited substantively different determinants of substance use and mental health disorders, describing substance use as a manifestation of mental health problems emerging from experiences of stigmatization and marginalization. Themes highlighting these determinants across the social ecology include: (1) Individual level -- stress and anxiety about coming out as a SGM (2) Community level -- community pressure to engage in a sub-culture characterized by problematic substance use, and (3) Socio-political level -- environments encouraging SGM-identified people to hide or deny their identities. Conclusion: These findings suggest that unique determinants of health influence SGM-YA experiences of co-occurring substance use disorders and mental health problems. Multi-level interventions addressing substance use disorders as a manifestation of mental health problems emerging from stigmatization and marginalization may be most effective for addressing SGM-YA health inequities.

Financial Support: This study was funded by grants K01DA23610 and R01DA33974 (PI: H. Corliss.) from the National Institutes of Health/National Institute on Drug Abuse (NIH/NIDA). Dr. Felner is supported by NIH/NIDA training grant T32DA023356 (PI: S. Strathdee).

First Name: Jennifer

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Company Affiliation: San Diego State University

ID: 392
Improving equity and consistency In hospital administration of smoking cessation pharmacotherapy

Alex Ramsey, Washington University School of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Treatment

Abstract: AIM: Smoking prevalence remains high among those entering hospital settings, presenting an opportune time to promote cessation. Among 252,472 hospital admissions from 2010-2016, nearly one-third of patients smoke cigarettes yet only 22% of patients who smoke received smoking cessation pharmacotherapy during hospitalization. Significant disparities also exist across services and by race, as African-Americans who smoke were 40% less likely than European-Americans who smoke to receive inpatient pharmacotherapy. The goal of this study was to understand system factors that limit and give rise to variation in rates of pharmacotherapy administration. We hypothesized that engaging with diverse patient and provider stakeholders would identify potential leverage points within current prescribing and administration policies to yield equitable access to inpatient smoking cessation medication. METHODS: Using community-based system dynamics, we engaged 42 stakeholders in five group model building sessions with patients, social workers, nurses, nurse practitioners, pharmacists, medical residents, and a collective group integrating all provider groups. We collected stakeholder-generated visual models through concept mapping, modeling dynamic relationships, and generating action ideas. The unique stakeholder perspectives were synthesized into a final model that was refined by the collective group. RESULTS: We observed several key factors (current workflow challenges, assumptions about patient readiness, unawareness of outpatient resources impacting hospital cessation efforts) that influence low and disparate rates of inpatient smoking cessation treatment. Results also highlighted three key leverage points—Automating treatment initiation, Building rapport to enhance patient readiness, and Connecting patients to resources at discharge—in which system-level interventions could operate. These “ABCs” of change informed stakeholder generation of specific action ideas prioritized by importance and feasibility. CONCLUSION: Consequently, we are proposing to trial a technology-facilitated team-based strategy leveraging “opt-out” order sets, physician touchpoints, and nurse-guided education and goal setting within the hospital system. These findings are primed to influence key administrators and drive improvements to hospital-based smoking cessation treatment.

Financial Support: This research is supported by a grant from the Foundation for Barnes-Jewish Hospital and by the National Institute on Drug Abuse of the National Institutes of Health under Award Number K12DA041449.

First Name: Alex

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ID: 393
Electronic nicotine delivery systems (ENDS) and social media use among young adult college students

Paul Harrell, Eastern Virginia Medical School

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Epidemiology

Abstract: Aim: Electronic Nicotine Delivery Systems (ENDS) usage grew exponentially in the past 5 years, exceeding combustible cigarette use among adolescents. Increasingly, this is true for young adults as well. Concurrently, social media, internet, and smartphone usage is on the rise. Potential connections between these two emerging trends are in need of further investigation. Methods: Young adult college students aged 18-24 from a large public university (N=1198) completed online surveys regarding ENDS attitudes and use ("vaping"). Additionally, respondents were asked their patterns of usage for 11 applications (SnapChat, Facebook, Instagram, Twitter, LinkedIn, YouTube, Google+, Reddit, Tumblr, Vine, Pinterest) and whether they saw vaping ads "Sometimes", "Most of the time", or "Always" when using the internet or a smartphone. Analyses excluded students who reported no smartphone use (n = 45). Regression analyses controlled for gender, age, number of applications used, and number of minutes of smartphone usage per day. Results: Although those who had never used ENDS did not differ signficantly from ever users in minutes of smartphone usage per day (469.8 vs. 452.9), they did differ in the number of apps they reported using on a daily (3.6 vs. 4.0, p=.01) or weekly (4.6 vs 5.0, p = .01) basis. Daily users of SnapChat were 2.4 times more likely to have tried vaping (95% Confidence Interval=1.5-4.0). In contrast, daily LinkedIn users were significantly less likely to have ever vaped (Odds Ratio=0.2, 95% CI=0.1-0.6). There were no significant differences in relation to the other 9 applications. Although there was not a significant effect of exposure to ads via smartphone, those who reported frequent exposure to vaping ads via the Internet were 2.3 times more likely to have tried ENDS (95% CI=1.2-4.3). Conclusion: Usage of smartphone applications, particularly SnapChat, is associated with higher rates of ENDS use. These media platforms should be further investigated for young adult impact.

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ID: 394
Long-term effects of childhood's family and school capitals on subsequent alcohol drinking behaviors

Yu Lo, National Yang-Ming University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Alcohol

Topic: Adolescent

Abstract: AIM Family and school capitals have long been recognized to play an important role in educational outcomes among school-aged children, yet potential long-term effects on substance use are less explored. The present study aims to investigate the connection linking family and school capitals (i.e., social and economic) in childhood with later involvement in alcohol drinking and problems in Taiwan. METHODS Data were obtained from the longitudinal Alcohol-Related Experiences among Children (AREC). A total of 928 6th graders (aged 11-12) were ascertained from 17 elementary schools in an urban region of Taiwan in 2006 (response rate=61.0%wt); follow-up was conducted at 8th grade (aged 13-14; n=783, follow-up rate=82.6%wt). Information concerning demographics, family capitals, alcohol drinking was collected by self-administered questionnaires; school capitals were assessed via self-report, official statistics, and geographic information system. Multilevel logistic regression analysis was used to evaluate relationship estimates while taking complex survey procedures into account. RESULTS At 8th grade, nearly one in ten reported having occasional drinking (i.e., drank alcohol on four or more occasions) in the past-year, and 7% ever experienced drunkness. Multilevel analyses indicated that childhood alcohol initiation was the strongest predictor (drunkness: Odds Ratio [OR]=6.10). Higher parental education attainment (OR=0.57, 95% CI=0.34-0.98) and parental involvement at 6th grade (OR=0.51; 95% CI=0.30-0.87) were inversely linked with occasional drinking. Increased parent/child conflict was associated with increased drunkness (OR=1.90; 95% CI=1.04-3.46). Nevertheless, the effects of family capitals became less salient after school capitals were taken into account; discretionary dollars per pupil [per 1000 NT dollar] and teacher-student ratio was accordingly associated with lower odds of occasional drinking (OR=0.99, p CONCLUSION Our findings warrant considering social and economic capitals at family-and school-levels in late childhood while devising and delivering preventive strategies targeting to address alcohol drinking and problems in adolescence.

Financial Support: the Ministry of Science and Technology [grant numbers: 95-2314-B-400-009-MY3, 98-2314-B-010-038-MY3, 101-2628-B-010-004-MY3, and 104-2314-B-010-008-MY3]

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ID: 395
Influence of comorbid drug use disorder on receipt of specialty addictions treatment for alcohol use disorder among VA patients with Hepatitis C

Madeline Frost, Veterans Affairs Puget Sound Health Services Research & Development

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Alcohol

Topic: Treatment

Abstract: Background: Despite risks associated with alcohol use disorders (AUD) for patients with hepatitis C virus (HCV) infection, addictions treatment is underutilized in this population. Though comorbid drug use disorders (DUD) are common, their influence on AUD treatment receipt is not well understood. Aim: We evaluated the association between comorbid DUD and AUD treatment receipt in a national sample of patients with HCV and AUD from the U.S. Veterans Health Administration (VA), the nation's largest provider of HCV care. Methods: Secondary electronic health records data identified patients with ICD-9 diagnoses for HCV and AUD among all positive alcohol screens (AUDIT-C≥5) documented nationally 10/01/09 - 5/30/13. Poisson regression models clustered on patient were used to estimate incidence rate ratios and predicted prevalence of receiving AUD treatment (stop codes/bed sections with accompanying AUD diagnosis ≤365 days following positive screening) for patients with comorbid DUD (ICD-9 codes documented ≤365 days prior to positive alcohol screening) versus those without. Models were unadjusted, then adjusted for socio-demographics, year of positive screen, and mental health disorders. Results: Among 20,320 patients (n= 30,765 positive screens) with HCV and AUD, 46.4% had comorbid DUD, and 38.4% received AUD specialty addictions treatment within one year of positive screening. Having a DUD was associated with increased likelihood of receiving AUD treatment in unadjusted [IRR 2.39 (95% CI 2.31-2.47); prevalence among DUD 52.7% (95% CI 51.8-53.6); prevalence among no-DUD: 22.1% (95% CI 21.4-22.7)] and adjusted analyses [IRR: 1.89 (95% CI 1.82-1.96); prevalence among DUD 52.8% (95% CI 51.9-53.7); prevalence among no-DUD: 22.4% (95% CI 21.8-23.1)]. Conclusions: Though rates of AUD treatment receipt among patients with HCV and AUD were low overall, comorbid DUD increased likelihood of AUD specialty addictions treatment receipt. Future research should investigate mechanisms underlying this association, such as enhanced readiness for treatment or differential provider referral practices.

Financial Support: This work was supported by the National Institute on Alcohol Abuse and Alcoholism (R21 AA022866). Dr. Williams is supported by a Career Development Award from VA HSR&D (CDA 12-276).

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Degrees: MA MD Ph.D etc:: MPH

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ID: 396
Families in crisis: Understanding the needs of homeless families with parental substance use disorders

Roya Ijadi-Maghsoodi , University of California Los Angeles

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Behavior

Abstract: AIM Homeless families have high rates of trauma exposure and parental substance use disorders (SUDs), which place youth in these families at risk for substance use and poor mental health outcomes. Although family level interventions are effective at preventing substance use and mental health problems in youth in housed populations, there is a dearth of interventions designed for homeless families. We conducted qualitative interviews with parents and youth with a history of homelessness and parental SUDs, and service providers, to understand the stressors, needs of these families, and recommendations for implementing a family intervention. METHODS We conducted 55 in-depth, semi-structured interviews: 16 parents with a history of homelessness and parental SUDs in the family, 15 youth in the families aged 10-18 (7 males and 8 females), and 24 homeless housing service providers. Participants were recruited from transitional housing facilities in Los Angeles County. Interviews explored the family experiences, needs, stressors, family processes, and recommendations for a family intervention. Interviews were audio-recorded, transcribed, and analyzed using in-depth content analysis. RESULTS Parents and youth described a pressing need for permanent housing and increased case management support. Families experienced stressors of prior trauma, along with separation and reunification with children due to past parental substance use. Across the interviews, participants conveyed a need to improve family communication, cope with past trauma and parental substance use, and increase family quality time. CONCLUSION Homeless families living in transitional housing face extraordinary difficulties obtaining permanent housing, navigating services, and dealing with family stressors, including trauma, separation/reunification, and parental SUDs. Our findings reveal the need for increased understanding of homeless families with parental SUDs, better access to permanent housing for families in Los Angeles County, enhanced case management, and trauma-informed, family programs tailored towards homeless families.

Financial Support: National Institute on Drug Abuse of the Nations Institutes of Health under the AACAP NIDA K12 Program, Grant # K12DA000357

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ID: 398
Stress- and drug priming-induced reinstatement of drug-seeking in rats: comparison of nicotine and cigarette smoke condensate

Seong Shoon Yoon, Korea Institute of Toxicology

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Nicotine/Tobacco

Topic: Dependence

Abstract: Aims: Relapse to cigarette smoking is caused by external cues previously associated with drug use or stress. Although cigarette smoke consists of various components including nicotine, non-nicotine alkaloids, and 8000 other constituents, most experimental studies in animals use nicotine alone. Our objective was to study the differential role of nicotine and cigarette smoke condensate (CSC) in the reinstatement of drug-seeking behavior induced by a pharmacological stressor, yohimbine, or a priming injection of drug. Methods: Initially, Sprague-Dawley rats were intravenously self-administrated nicotine (0.05 mg/kg/infusion) or CSC (0.05 mg/kg/infusion nicotine content) during the 2h/21-day session under a fixed-ratio schedule of reinforcement, followed by extinction phase when drug-paired lever responding had no consequence. After at least two consecutive sessions with low level responding, the ability of nicotine (0.3 mg/kg, s.c.) or CSC (0.3 mg/kg nicotine content, s.c.) to reinstate drug-paired lever responding was measured in nicotine- or CSC-trained rats. Additionally, rats were given with yohimbine (2.5 mg/kg, i.p.) 30 min before the start of test session of reinstatement. Results: The number of non-reinforced responding induced by yohimbine in the CSC self-administrated rats was greater than that in the nicotine self-administrated rats. Similarly, the CSC self-administrated rats were significantly more sensitive to drug priming-induced reinstatement than nicotine alone. Conclusions: Our results demonstrate CSC self-administrated rats are more vulnerable to stressful stimuli and drug itself than nicotine self-administrated rats, resulting in reinstatement of drug seeking. Although further study is needed, the current results indicate that non-nicotine constituents may affect the reinstatement of drug-seeking behavior.

Financial Support: This research was supported by a grant (14182MFDS977) from Ministry of Food and Drug Safety in 2018

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ID: 399
Comparison of rewarding and reinforcing properties of nicotine and cigarette smoke condensate in rodents

In Soo Ryu, Korea Institute of Toxicology

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Nicotine/Tobacco

Topic: Dependence

Abstract: Aims: Nicotine, a major psychoactive compound in tobacco, is associated with tobacco dependence. Although cigarette smoke contains not only nicotine but also non-nicotinic minor alkaloids, psychopharmacological effects of cigarette smoke have not been sufficiently understood. In this study, we aimed to compare rewarding and reinforcing effects of nicotine or cigarette smoke condensate (CSC) using conditioned place preference (CPP) in mice and self-administration (SA) in rats. Methods: Firstly, we evaluated the rewarding effects of nicotine (0.125, 0.25, 0.5 mg/kg nicotine content, i.p.) or CSC (0.125, 0.25, 0.5 mg/kg nicotine content, i.p.) using the CPP paradigm. Secondly, we conducted nicotine or CSC SA under fixed ratio (FR) schedules (FR1-3) to determine its reinforcing effects in the acquisition and maintenance phases. Finally, to determine the relative reinforcing strength of nicotine and CSC, we performed SA under progressive ratio (PR) schedule. Results: In the CPP study, 0.125 mg/kg CSC produced a significant place preference, which is up to similar level of the 0.5 mg/kg nicotine. In the acquisition study of SA, CSC was significantly self-administered as compared with nicotine alone. In dose response study of SA, the peak of CSC response was occurred at a dose of 7.5 μg/kg/infusion, whereas the peak of nicotine was occurred at a dose of 15 μg/kg/infusion. In the PR test, CSC tended to increase the breaking point than nicotine alone. Conclusions: Our results demonstrate that CSC has more potency in the rewarding effects, acquisition and maintenance of reinforcing effects than nicotine alone. These results suggest that non-nicotinic constituents in cigarette smoke synergistically upregulate the rewarding and reinforcing effects of nicotine in rodents.

Financial Support: Financial Support: This research was supported by a grant (14182MFDS977) from Ministry of Food and Drug Safety in 2018.

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ID: 400
Influence of impulsivity fluctuations on craving and substances use among patients beginning treatment for addiction: An ecological momentary assessment study

Marc Auriacombe, Université de Bordeaux

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Mechanisms of Action

Abstract: Aim: To determine to what extent fluctuations in impulsivity would influence the link between craving and substance use among patients with use disorders. Methods: Ecological Momentary Assessment (EMA) was used to collect real-time data on craving, substance use, decision-making and impulsivity. Participants were included at an outpatient addiction clinic among patients beginning treatment for an alcohol, tobacco, or cannabis use disorder. Patients completed an impulsivity test (Barratt Impulsiveness Scale -11) before a one-week period of EMA. Results: Analyses on 46 subjects (52% male; mean age 42.7 years (SD = 12.1)) showed impulsivity was significantly associated with greater craving, but not with substance use. No impact of impulsivity fluctuations was observed on the prospective link between craving and later substance use. Conclusion: These results suggest that impulsivity was associated with higher craving levels reported in daily life among patients beginning treatment for addiction. Further analysis are needed to fully understand these phenomena. The characterization of the link between craving and impulsivity may lead to innovative methods in addiction treatment.

Financial Support: Financial support: ANR 2006.

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Company Affiliation: Université de Bordeaux

ID: 402
Impact of SBI training on health professional students' knowledge and confidence in addressing unhealthy substance use

Aaron Johnson, Augusta University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Other

Abstract: AIM: Screening and brief intervention (SBI) can be an effective means of identifying and addressing unhealthy substance use and can be delivered by many types of health professionals in a variety of settings. Augusta University has integrated SBI curriculum into 7 different health professional programs. Data collected prior to training found that, compared to practicing students (e.g., medical residents, advanced practice registered nurse students), non-practicing students (e.g., medical students, psychology masters students) were lower on knowledge measures as well as confidence in addressing patients' substance use. This study examines post-training data to see if the previously observed differences across programs persist, or if they may be reduced or eliminated by training. METHODS: Health professional students in each program (N=485) were asked to complete surveys prior to and immediately following training in screening and brief intervention. The survey included measures of knowledge of the effects of substance use and confidence in addressing patients' unhealthy substance use. Paired t-tests assessed differences in pre- and post-training responses for each program, while ANOVA and Scheffe's post-hoc tests determined mean differences between programs. RESULTS: Knowledge test scores increased significantly from baseline to post-training for all programs except residents (p
Financial Support: Substance Abuse and Mental Health Services Administration

First Name: Aaron

Last Name: Johnson

Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: Augusta University

ID: 403
Exploring the actions of intranasal naloxone (INN) on limbic activation triggered by cocaine cues: a case series.

Kyle Kampman, University of Pennsylvania

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Stimulants

Topic: Treatment

Abstract: Aims: The long-acting mu opioid antagonist naltrexone has demonstrated the ability to reduce cue-triggered activation of the brain's motivational circuitry in patients with opioid use disorders. In the current single-blind pilot study, we tested whether the short-acting mu opioid antagonist intranasal naloxone (INN) might block cue-triggered activation of motivational circuitry in patients with cocaine use disorders. Methods: We used "fast" event-related BOLD fMRI to scan a case series of stabilized cocaine inpatients (n=5) who received INN (4 mg per nostril) shortly before cue tasks featuring cocaine images of either 33 msec ("unseen" duration) or 500 msec (visible duration); each task also contained comparator cues. Pre-planned contrasts (SPM 8 pipeline) were conducted to characterize the (limbic) brain response to cocaine (vs. neutral) cues, and to cocaine cues across the task; historical (placebo or medicated) controls offered additional informal comparisons. Results: Overall, the cocaine patients pre-treated with INN evidenced a range (parametric t maps, thresholded 2 Conclusions: In this pilot case series, INN did not demonstrate an overall "blunting" action on the brain's motivational response to cocaine cues at the tested dose of 8 mg. INN may not be useful for managing (cue-triggered) cocaine motivation. However, as longer-acting mu opioid antagonists have shown the ability to modulate the reinforcing properties of several drugs of abuse, formal dose-response studies could examine the impact of a sustained, long-acting opioid antagonist on the brain probes for cocaine motivation.

Financial Support: Financial Support: NIH/NIDA U54 DA039002 Cocaine Cooperative Medication Development Center (Kampman, Center PI; Childress, Imaging Project PI). Intranasal naloxone contributed at no cost by Opiant Pharmaceuticals; the company had no role in the analysis of the imaging results.

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Company Affiliation: University of Pennsylvania

Contact Title: Associate Professor of Psychiatry

ID: 404
Heroin resurgence: Evidence from a national study of harm reduction among people who inject drugs (PWID)

Usaneya Perngparn, Chulalongkorn University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Dependence

Abstract: Background/Aim: In Thailand, methamphetamine has been a major drug problem since the early 1990s. Recently, the national data has presented a sign of heroin re-emerging. The presentation presents the evidence of heroin resurgence and the risk of use among dependents. Methods: Ten-year data (2007-2016) on national drug dependence treatment and seizures were analyzed. During 2015-2016, a mixed methods assessment of a harm reduction program was conducted among 393 PWID covering 3 regions where most PWID resided. Results: A dramatic increase in heroin seizures occurred during 2007-2016, from 5-10%. The trend of new cases of heroin dependents attending treatment was constant (about 37 to 42% of total heroin treatment) during 2007-2013 and after that it increased to 50% in 2016. The major increase was found in Bangkok (from 9 to 21%) and among students. About 20-30% reported injecting heroin. Compared to other provinces, the rate of PWID in Bangkok increased 26%. The study found that 9-12% of PWID also shared needles. PWID who never attended a harm reduction program obtained needles and syringes from drug stores and friends who injected drugs. Overall, 66 respondents (17%) reported drug overdose. Nearly half had more than one overdose; 92% from heroin. Regarding their friends' overdose, about 32% (126/393) had a friend overdose; 53% died. PWID reported that heroin came in different forms depending on the region. In Bangkok, heroin was round, brown and less pure while in the north and south it was white powder. Conclusion: Our study and the national data have both indicated similar results of heroin resurgence including the risk of drug overdosing and health problems. Funded by: The Office of Narcotics Control Board and the Thai Health Promotion Foundation.

Financial Support: Chulongkorn University, Bangkok, Thailand

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Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Chulalongkorn University

ID: 405
The impacts of childhood sexual and physical abuse on adulthood sex trade involvement in the US: Evaluating gender differences in associations and mediation

MacRegga Severe, New York University School of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Sex Differences

Abstract: Aim: To examine drug use, depression and delinquency as mediators of the relationship between childhood physical and sexual abuse and adulthood sex trade among both men and women in the US. Methods: Using data from Wave I (age 11-21), III (age 18-26) and IV (age 24-32) of the National Longitudinal Study of Adolescent to Adult Health (n=12,288 with sample weights), we estimated odds ratios (ORs) and 95% confidence intervals (CIs) for associations between sexual and physical abuse before the age of 18 and adulthood sex trade (report of buying/selling sex). Additionally, we assessed for attenuation of the odds ratio by controlling for the mediator variables depression, delinquency, and drug use. Results: Sexual abuse and physical abuse were common among both females (sexual: 10%, physical: 12%) and males (sexual: 7%, physical: 13%). Among females, sexual abuse appeared to predict sex trade yet the result was not significant (OR=1.93, 95%CI: 0.59-6.38) and physical abuse was not associated with sex trade (OR: 0.74, 95% CI: 0.19-2.84). Among males, physical and sexual abuse were s predictors of sex trade (sexual: OR: 2.88, 95%CI: 1.53-5.43; physical: OR: 2.47, 95%CI: 1.57-3.90). Among males, the association between sexual abuse and sex trade was weakly attenuated upon adjustment for delinquency (OR: 2.65, 95% CI: 1.42-4.96) and IDU (OR: 2.45, 95%CI: 1.26-4.75) and did not materially change upon adjustment for depression and other drug use. The association between physical abuse and sex trade among males was moderately attenuated by adjustment for delinquency (OR: 2.12, 95%CI: 1.35-3.33) and did not change upon adjustment for other factors. Conclusion: Screening for child abuse in both males and females is critical and has implications for future STI/HIV risk. Addressing post-abuse delinquency and drug use may prevent abuse-related sex trade. Additional research on abuse and high-risk sexual behavior among men is warranted.

Financial Support: Supported By: R01DA036414

First Name: MacRegga

Last Name: Severe

Degrees: MA MD Ph.D etc:: MS

Company Affiliation: New York University School of Medicine

ID: 406
Rapid assessment of choice between fentanyl and liquid food in male and female rats

Drew Townsend, Virginia Commonwealth University

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Opiates/Opioids

Topic: Behavior

Abstract: AIM: The aim of this work was to develop a drug self-administration procedure in rats that permitted within-session assessment of choice between fentanyl and liquid food. METHODS: In Experiment 1, the potency of fentanyl alone (0-10 µg/kg/inj) to function as a reinforcer was determined under a fixed-ratio 5 (FR5) schedule of reinforcement in male (n=6) and female (n=6) rats. In Experiment 2, rats were tested under a concurrent FR5:FR5 schedule of fentanyl and liquid food availability. Here, the fentanyl dose was fixed (3.2 µg/kg/inj) and the concentration of liquid food (0-100%) was manipulated across sessions. Lastly, Experiment 3 determined within-session fentanyl vs. liquid food choice with increasing unit fentanyl doses (0-10 µg/kg/inj) concurrently available with liquid food. The concentration of liquid food was manipulated across sessions (1.8-56%). RESULTS: In Experiment 1, fentanyl functioned as a reinforcer in both male and female rats, with female rats self-administering a greater number of injections when 0.32 mg/kg/inj was available. In Experiment 2, increasing liquid food concentrations decreased responding on the fentanyl-associated key and increased responding on the food-associated key. Concentrations of 56% and 100% liquid food decreased fentanyl choice compared to the water (0%) condition. In Experiment 3, increasing the unit fentanyl dose within-session resulted in a dose-dependent increase in fentanyl choice. Increasing the liquid food concentration progressively decreased the reinforcing effectiveness of fentanyl, as evidenced by rightward shifts of the choice dose-effect function. CONCLUSION: These results show feasibility of training a within-session fentanyl vs. food choice procedure in rats. The observed sensitivity of opioid choice to manipulations of an alternative, non-drug reinforcer provide evidence of the generality of this procedure to other choice procedures used in previous human and nonhuman primate drug self-administration studies.

Financial Support: UH3DA041146, T32DA007027, Virginia Commonwealth University Professional Development Funds

First Name: Drew

Last Name: Townsend

Company Affiliation: Virginia Commonwealth University

ID: 407
Analgesic effects of the g-protein biased mu-opioid receptor agonist, kurkinol

Bronwyn Kivell, Victoria University of Wellington

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Opiates/Opioids

Topic: Behavior

Abstract: AIM: To evaluate the analgesic effects and behavioural side-effects of the mu-opioid agonist kurkinol, a G-protein biased analogue of Salvinorin A. METHODS: Analgesic effects were evaluated in C57BL/6 mice using the 50°C hot-water tail withdrawal assay using cumulative administration of Kurkinol. Analgesic effects were compared with morphine. Tolerance was determined following daily administration of Kurkinol (5 mg/kg) and dose-response tail-withdrawal effects evaluated on Day 9. Effects on motor co-ordination were also evaluated using the accelerating rotarod, and latency to fall recorded. RESULTS: Kurkinol is more potent than morphine in hot-water tail-withdrawal assay, with ED50 values of 2.35 ± 0.25 (mg/kg) and 6.43 ± 0.27 (mg/kg) respectively ($P < 0.001$). Kurkinol showed no significant tolerance effects over the 9 days of repeated administration with an ED50 value of 3.60 ±0.19 (mg/kg) on day 9. In contrast, morphine showed significant tolerance from days 5-9 with an ED50 on day 9 of 16.35 ± 0.75 (mg/kg). Kurkinol also had reduced effects in motor performance with shorter duration of motor impairment compared to morphine ($p < 0.001$). Kurkinol impaired motor performance in the rotarod for up to 45 min, whereas the effects of morphine lasted for 120 min. CONCLUSIONS: Kurkinol is more potent than morphine in models of thermal pain and unlike morphine, does not show tolerance. This improved profile is attributed to G-protein bias at the mu-opioid receptor.

Financial Support: Financial Support: Health Research Council of New Zealand and NIH (DA018151).

First Name: Bronwyn

Last Name: Kivell

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Victoria University of Wellington

ID: 408
A videogame intervention for tobacco product use prevention in adolescents

Lynn Fiellin, Yale University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Adolescent

Abstract: Aim: The highest rates of adolescent smoking occur during the transition from middle to high school, when most adolescents are playing videogames. The project's purpose was to determine the impact of a videogame intervention, smokeSCREEN, on adolescents' outcomes related to e-cigarettes, cigarettes, and other tobacco products. Methods: Measures were collected on adolescents enrolled in this pre-post study design: demographics, knowledge, intention to use, risk perceptions, use beliefs, and exposure to e-cigarettes/cigarettes/other tobacco products. smokeSCREEN was played in four sessions (60 minutes each). Analyses: paired t-tests of pre-post videogame change on averaged scores from each outcome, regression analyses of game effects on change, and mediational effects of post-test knowledge and beliefs on post-test intentions. Regression analyses controlled for pre-test values. Age and gender effects were also analyzed. Results: Eighty adolescents participated: 49 (61%) girls, mean age: 12 years, 67 (84%) racial/ethnic minority youth. At baseline, 1.25-3.75% had tried e-cigarettes/cigarettes/other tobacco products. Improvements pre- to post-gameplay: knowledge about e-cigarettes and cigarettes (both $P < 0.0001$); increased understanding of risk perceptions about e-cigarettes ($P = 0.001$) and cigarettes ($P = 0.008$); positive change in health beliefs about e-cigarettes ($P = 0.012$), cigarettes ($P = 0.054$), and other tobacco products ($P = 0.027$). Age was associated with change in e-cigarette knowledge ($P = 0.015$) and risk perceptions ($P = 0.033$). Gender was related to change in cigarette risk perception ($P = 0.046$); greater change in girls than boys. The effect of knowledge on intentions to use e-cigarettes was mediated through beliefs (indirect effect $P = 0.056$). Conclusions: Brief targeted videogame play may have a promising effect on preventing early adolescent tobacco product use, particularly use of e-cigarettes.

Financial Support: Grants P50DA036151 and 5P50CA180905

First Name: Lynn

Last Name: Fiellin

Degrees: MA MD Ph.D etc:: MD

Company Affiliation: Yale University

ID: 409
Patterns of buprenorphine use and risk for rapid re-arrest among highly vulnerable opioid-involved women released from jails in rural Appalachia

Hilary Surratt, University of Kentucky

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: Aim: Opioid use is common among correctional populations, yet few inmates receive treatment during incarceration or post-release. In underserved rural areas, access to substance use treatment in re-entry is severely limited. This presentation examines associations of buprenorphine use, both licit and illicit, health services access, and risk for re-arrest within 3 months of jail release among rural opioid-involved women. Methods: Women participants were recruited from three rural Appalachian jails. Trained interviewers administered standardized face to face interviews, including detailed drug use and health histories. Those who reported moderate to severe opioid-involvement on the NM-ASSIST, and had available data on patterns of buprenorphine use (N=188), were included in the current analysis. Logistic regression analyses examined predictors of re-arrest within 3 months of release to the community. Results: The sample had a median age of 32, all were White. 59% reported buprenorphine use in the month prior to baseline arrest, the majority of whom were using illicitly. 69% of illicit users indicated self-treatment of addiction, pain or withdrawal as primary motivation. None were receiving MAT in the jail setting at baseline. At 3-month follow up (N=172), 36 (19.1%) had been re-arrested. Significant risk factors for re-arrest included: number of days high in follow-up period (OR=1.02), injecting in follow up period (OR=3.51), number of illicit buprenorphine days in follow up period (OR=1.014), and withdrawal symptoms (OR=3.3) in follow up period. Protective factors included: substance treatment during follow up (OR=.28); healthcare source at follow up (OR=.31); total (licit & illicit) buprenorphine days in month prior to arrest at baseline (OR=.95). Conclusion: Rural opioid-involved women released from jail are highly vulnerable to rapid re-arrest, and lack access to supportive care systems for substance treatment, including MAT. Innovations to integrate MAT into re-entry to improve licit access is recommended from both public health and correctional perspectives.

Financial Support: This work was supported by NIH Grant R01 DA0033866.

First Name: Hilary

Last Name: Surratt

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: University of Kentucky

Contact Title: Professor & Director

ID: 410
Dasotraline is a monoamine reuptake inhibitor not a releasing agent as revealed by tetrodotoxin (TTX) sensitivity in microdialysis in the nucleus accumbens of freely-moving rats

David Heal, RenaSci Ltd

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Stimulants

Topic: Mechanisms of Action

Abstract: Aims: Dasotraline is a novel drug being developed to treat ADHD. It is a potent inhibitor of human dopamine (DA) (IC50 = 3ηM) and noradrenaline (NA) reuptake transporters (IC50 = 4ηM) and a weaker inhibitor of human serotonin (5-HT) transporters (IC50 = 15ηM). We used the Na+ channel blocker, tetrodotoxin (TTX), to investigate whether dasotraline evokes monoamine release. d-Amphetamine was the reference comparator. Methods: Single 2.0mm microdialysis probes were stereotaxically implanted into nucleus accumbens (ACB) (AP +2.2mm, ML + or -1.5mm, DV -8.0mm relative to bregma) of anaesthetised male rats. After ≥16hr recovery, 15min microdialysate samples (1.2µl/min) were taken from freelymoving rats for 2hr after administration of dasotraline, d-amphetamine or vehicle. TTX was reversedialysed via the probe starting 15min before drug injection and maintained throughout the experiment. DA, DOPAC and HVA were measured by hplc-ecd. Results are mean±SE, n=7-9. Results: Basal DA efflux (6.11±0.29fmol/5µl; 0-2hr) in ACB was rapidly decreased by reverse dialysis of TTX (1µM) reaching a nadir of 85.6% vehicle control at 135min ($p < 0.001$). TTX also decreased extracellular DOPAC (≤57.9%; $p < 0.001$) and HVA (≤28.5%; $p < 0.001$). Under control conditions, dasotraline (10mg/kg ip) produced a gradual increase in DA efflux peaking at 770±137% of baseline at 120min ($p < 0.001$). Dasotraline produced a concomitant fall in DOPAC (nadir=36.2% at 75min; $p < 0.001$) but not HVA. dAmphetamine (3mg/kg ip) rapidly increased DA efflux peaking at 3015±634% at 30min ($p < 0.001$). There were concomitant decreases in DOPAC and HVA ≤70.7% ($p < 0.001$) and ≤36.2% ($p < 0.001$), respectively. TTX prevented dasotraline from significantly increasing DA efflux above vehicle control values. DA release by damphetamine was unaltered by TTX with a maximum increase of 2437±705% at 30min ($p < 0.001$). Conclusions: These findings lead to 3 important conclusions. Dasotraline is a DA reuptake inhibitor. Dasotraline is not a DA releasing agent. Dasotraline will be devoid of damphetamine-like stimulant properties.

Financial Support: Sunovion Pharmaceuticals Inc.

First Name: David

Last Name: Heal

Degrees: MA MD Ph.D etc:: Ph.D.,DSc

Company Affiliation: RenaSci Ltd

Contact Title: Executive Director

ID: 411
The mediating effect of illicit drug use on the relationship between risky sexual behaviors and HIV infection: Results from the 2013 Taiwan Internet MSM Sex Survey

Lian-Yu Chen, Taipei City Hospital

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: AIDS/Immune

Abstract: Aim: Increasing trend of HIV incidence in men who have sex with men (MSM) in Taiwan was noted. We aimed to 1) describe patterns of risky sexual behaviors and illicit drug use among MSM population, and to 2) examine the moderating effects of illicit drug use on the relationship of risky sexual behaviors and HIV infection. Methods: The Taiwan 2013 Internet MSM Sex Survey was conducted cross-sectionally online from January to February 2013. We first examined the association between risky sexual behaviors and HIV and STDs (sexually-transmitted diseases) status using logistic regression models. Later, we further assessed the moderating effects of illicit drug use between risky sexual behaviors and HIV/STD infection using interaction term. Results: Among the 2,020 MSM participants, 5.5% of them had reported having being diagnosed with HIV and 7.4 % with STDs. Bareback sex was significantly associated with HIV [aOR=2.27(1.35,3.80)] and STD infections [aOR=2.27 (1.35,3.80)]; illicit drug use was also associated with higher odds of HIV [aOR=4.16(2.83,6.13)] and STD infections [aOR=4.78(3.39,6.72)]. Furthermore, illicit drug use significantly moderated the relationship between bareback sex and both HIV and STD infections. Conclusions: Both illicit drug use and risky sexual behaviors were associated with higher odds of HIV and STD infections. As illicit drug use positively moderated risky sexual behaviors and HIV/STD infections, future HIV/STDs prevention strategies should incorporate substance use prevention concepts. Screening for illicit drug use problems among MSM population who had HIV or STDs should be considered for clinicians.

Financial Support: Taipei City Hospital

First Name: Lian-Yu

Last Name: Chen

Degrees: MA MD Ph.D etc:: MD, PhD

Company Affiliation: Taipei City Hospital

ID: 412
Brief counseling for veterans with musculoskeletal disorders, risky substance use and service-connection claims

Marc Rosen, VA Connecticut Healthcare

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Alcohol

Topic: Treatment

Abstract: AIMS: The service-connection application is an ideal point-of-contact for referring Veterans to counseling, an early intervention for this at-risk population. Among musculoskeletal disorder (MSD) claimants who also reported risky substance use, we pilot-tested a counseling intervention targeting pain and risky substance use called Screening Brief Intervention and Referral to Treatment-Pain Management (SBIRT-PM). METHODS: Veterans presenting for service-connection examinations for back, neck, shoulder or knee pain were randomly assigned in a 2:1:1 ratio to SBIRT-PM, Pain-Module counseling only, or Treatment-as-Usual (TAU). Participants assigned to either counseling condition were offered a single meeting with a study therapist with two follow-up telephone calls as needed. Participants also completed outcome assessments of pain treatment uptake, pain severity (Brief Pain Inventory) and risky substance use (timeline follow-back calendars) at 4 and 12 weeks after randomization. RESULTS: Of 257 Veterans evaluated, 101 reported risky substance use and were randomized. Counseling was attended by 75% of Veterans offered it and was well-received. VA pain-related services were used by 51% of participants in either of the pain-focused conditions but only by 27% in TAU (p
Financial Support: R34 AT008318 (MIR) and the VISN 1 MIRECC

First Name: Marc

Last Name: Rosen

Degrees: MA MD Ph.D etc:: M.D.

Company Affiliation: VA Connecticut Healthcare

ID: 413
Regional heterogeneity in the association between medical marijuana laws and opioid overdose: findings from the National Health Interview Survey, 1986-2011

June Kim, New York University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: Aim: Medical marijuana laws (MMLs) have previously been associated with reductions in opioid-related overdose. We attempt to replicate this finding within a nationally representative population-based cohort. Methods: Participants surveyed in the National Health Interview Survey (NHIS) between 1986-2009 were followed up for incident opioid overdose up to December 31st, 2011. Between 2000-2011, all cases arising in a given year were matched to adult controls who were surveyed that given year and eligible for mortality follow-up. The exposure distribution is contrasted between cases and controls, allowing an approximation of the rate ratio of overdose associated with MMLs. Results: From our underlying cohort, 791 opioid overdose decedents arose between 2000 and 2011. These cases were matched on calendar year to 723,920 controls. Overall, compared to controls, cases were more likely to be male, middle-aged, non-Hispanic White, separated/divorced; less educated, and have a family income below the poverty threshold. We found no overall association between state MMLs and the rate of opioid overdose. In the West, an overdose was more likely to occur in states with MML than without between 2000 and 2005. However, between 2006 and 2011, an overdose was less likely to occur in states with an MML in the West (OR=0.51, $p < 0$ .001). In the Northeast in either period, MML was not significantly associated with overdose. Conclusions: MMLs in the West appear to have a protective effect on the rate of overdose, but only after 2006. This may reflect heterogeneity in state MMLs, as MMLs in the West are less restrictive.

Financial Support: Funding: R01DA037866 (Martins), T32DA007233-34 (Falkin), T32DA031099-05 (Hasin)

First Name: June

Last Name: Kim

Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: New York University

ID: 414
Profile of dasotraline in rats trained to discriminate d-amphetamine from saline compared with various drugs used to treat ADHD

David Heal, RenaSci Ltd

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Stimulants

Topic: Mechanisms of Action

Abstract: Aims: Dasotraline is a novel monoamine uptake inhibitor drug being developed to treat ADHD. It is a potent inhibitor of human dopamine (DA) (IC50 = 3ηM) and noradrenaline (NA) reuptake transporters (IC50 = 4ηM) and a weaker inhibitor of human serotonin transporters (IC50 = 15ηM). We have compared the psychoactive effects of dasotraline in rats trained to discriminate d-amphetamine (d-AMP) from saline against a wide range of monoaminergic drugs that are either approved ADHD medications or have been reported to show efficacy in this disorder. Methods: Non-food-restricted female Lister hooded rats were trained to discriminate d-AMP (0.5mg/kg ip) from saline. Results were taken from the non-rewarded 2.5min part of the 10 min test sessions. All drugs were tested orally. Results: 15min post-dosing dasotraline (1-10mg/kg) generalised to saline. At 60 and 120min dasotraline (1-10mg/kg) generalised partially to d-AMP (26-75%). 15 min after dosing the β-phenylethylamine stimulants, d-AMP (0.25-1mg/kg) and phentermine (0.3-3mg/kg), dose-dependently generalised to the ip d-AMP cue. The stimulant reuptake inhibitor, methylphenidate (1-10mg/kg), and the weak selective DA uptake inhibitor, bupropion (3-30mg/kg), also dose-dependently generalised to d-AMP. The non-stimulant NA uptake inhibitor, atomoxetine (1-10mg/kg), generalised to saline at the 2 lower doses and partially generalised to d-AMP at the highest dose. Conclusions: Dasotraline did not generalise to d-AMP which differentiates it from the stimulants, d-AMP (C-II), methylphenidate (C-II) and phentermine (C-IV). The psychoactive profile of dasotraline lies between atomoxetine (weak partial generalisation) and bupropion (full generalisation). These results predict that the risk for recreational abuse in humans posed by dasotraline lies between that of two non-Scheduled, non-abused drugs.

Financial Support: Sunovion Pharmaceuticals Inc.

First Name: David

Last Name: Heal

Degrees: MA MD Ph.D etc:: Ph.D.,DSc

Company Affiliation: RenaSci Ltd

Contact Title: Executive Director

ID: 415
Efficacy of ketamine in the treatment of substance use disorders: A review of the literature

Jennifer Jones, Medical University of South Carolina

Abstract Category: Literature Review

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Treatment

Abstract: AIM Despite advances in behavioral and pharmacotherapy interventions, substance use disorders are frequently refractory to treatment. Substance use disorders are also associated with a high rate of comorbid depression, which serves as a robust trigger for relapse. Glutamatergic dysregulation has received increasing attention as a common neuropathology across multiple substances of abuse, as well as depression. Ketamine is a potent N-methyl-D-aspartate (NMDA) glutamatergic receptor antagonist which has been found to be effective in the treatment of severe, refractory depression. A pooled correlative analysis of all NIMH-funded ketamine studies for depression found that family history of substance use disorder was the single strongest predictor of enduring ketamine response. The proposed presentation is an up-to-date review of the recent literature on the efficacy of ketamine in the treatment of substance use disorders and comorbid depression. METHODS A PubMed search using MESH terms for ketamine and substance use disorders was undertaken to identify relevant clinical trials since 1997. RESULTS Four randomized controlled trials were identified: two focused on cocaine use disorder, and two focused on opioid use disorder. Consistent with earlier studies on alcohol use disorder, all studies found improvements in substance use outcomes. Both cocaine studies found improvements in craving, motivation, and rates of cocaine use. Both studies of opioid use disorder found significant improvement in abstinence rates in the ketamine treatment group, as compared to the control group, with statistically significant between-group effects noted as far as two years following a single ketamine infusion. CONCLUSION These results suggest that ketamine may facilitate abstinence across multiple substances of abuse, and warrants broader investigation as a pharmacotherapy in addiction treatment. We conclude with an overview of ongoing studies of ketamine in the treatment of substance use disorders.

Financial Support: NIDA T32 DA007288-26

First Name: Jennifer

Last Name: Jones

Degrees: MA MD Ph.D etc:: MD

Company Affiliation: Medical University of South Carolina

ID: 416
Touchpoints to identify individuals at high risk for opioid overdose death

Marc Larochelle, Boston University School of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: Aim: Touchpoints associated with high risk of opioid overdose death may present an opportunity to intervene. Touchpoints involving potentially inappropriate opioid prescribing (PIP) as well as non-PIP encounters have been identified, but the relative frequency and age distribution of both kinds of touchpoints prior to fatal opioid overdose are unknown. Methods: We analyzed a retrospective cohort of Massachusetts residents aged 11 years and older, who died of an opioid overdose between January 1 and December 31, 2014. We studied a one year lookback period using data from seven public health datasets linked at the individual level. We examined four PIP touchpoints: ≥3 months with > 100 mg morphine-equivalent daily dosage, ≥3 months with overlapping opioid and benzodiazepine prescriptions, ≥3 opioid prescribers in a quarter, or ≥3 opioid pharmacies in a quarter; and, four non-PIP touchpoints: opioid detoxification treatment, nonfatal opioid overdose, hospital encounter for IVDU-associated infection, and release from incarceration. We compared prevalence of PIP and non-PIP touchpoints among those over and under 50 years of age using chi-squared tests. Results: We identified 1,316 opioid overdose decedents; 984 (75%), were under 50 years of age. In the 12 months prior to death, 695 (53%) had encounters for one or more touchpoint. PIP touchpoints were identified in 269 (20%) of individuals and non-PIP touchpoints were identified in 511 (39%). Among decedents 50 years or older, 35% had experienced a PIP touchpoint compared with 16% for those under 50 years ($p < 0$ .0001). Meanwhile, non-PIP touchpoints were more prevalent among decedents under 50 years (43%) compared with those 50 or older (28%; $p < 0$ .0001). Conclusion: Overall, non-PIP touchpoints were more prevalent than PIP touchpoints prior to opioid overdose death; however, PIP touchpoints were more prevalent among older adults. These touchpoints, identified with public health data, are a logical target of opioid overdose prevention programs.

Financial Support: This project was supported by the National Center for Advancing Translational Sciences, National Institutes of Health, through BU-CTSI Grant Number 1UL1TR001430. Dr. Larochelle was supported by NIDA (K23 DA042168) and a Boston University School of Medicine Department of Medicine Career Investment Award.

First Name: Marc

Last Name: Larochelle

Degrees: MA MD Ph.D etc:: MD, MPH

Company Affiliation: Boston University School of Medicine

ID: 417
A survey assessing drug legalization beliefs

Alexis Hammond, Johns Hopkins University School of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Policy

Abstract: AIM: There has been advocacy for legalization of abusable substances, but there are limited systematic data on societal beliefs regarding such legalization. Data can help inform policy in this area, and people who misuse substances may have unique beliefs about legalization due to their own drug use experiences. The purpose of this study was to assess whether persons who use certain drugs would be in favor of drug legalization. It was hypothesized that persons who use a particular drug class would be in favor of legalization for that class. METHODS: 506 persons were surveyed using Amazon Mechanical Turk to assess substance use and beliefs regarding drug legalization. Participants provided data on demographics, substance use, political and religious affiliations, and primary past year drug of misuse (or no drug misuse). Legalization beliefs for specific drugs were assessed on 11-point scale (0=strongly disagree, 10=strongly agree). RESULTS: For persons with opioid misuse (15.4%), when asked, “I believe that heroin should not be legalized,” the average score was 5.3 (neutral). For persons with stimulant misuse (12.1%), when asked “I believe that cocaine should not be legalized,” the average score was 5.8. However, for persons with marijuana misuse (34.0%), when asked “I believe that medical marijuana should not be legalized” the average score was 1.7 (indicating disagreement), and when asked about “recreational marijuana” the average score was 1.6. CONCLUSION: These results suggest that marijuana users strongly support the legalization of both recreational and medical marijuana, whereas persons who primarily have opioid or stimulant misuse have less strongly held beliefs about legalization of substances within those respective categories. By taking the perspectives of people who misuse drugs of abuse into account, these data assist in framing discussions of drug legalization and have the potential to inform drug policy considerations.

Financial Support: This research was supported by internal departmental funds.

First Name: Alexis

Last Name: Hammond

Degrees: MA MD Ph.D etc:: MD, PhD

Company Affiliation: Johns Hopkins University School of Medicine

ID: 418
Prediction of viral suppression and HIV treatment adherence among hospitalized HIV infected patients using supervised learning algorithms

Yue Pan, University of Miami Miller School of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Epidemiology

Abstract: Aims: An estimated 49% of the 1.1 million persons with HIV infection in the United States (US) in 2014 were virally suppressed. A randomized clinical trial conducted among 801 hospitalized patients with HIV infection and substance use from 11 US hospitals found that patient navigation with or without financial incentives provided no beneficial effect on HIV viral suppression at 12 months (6-months post-intervention) compared to treatment as usual. However, question remains as to what factors are related to HIV viral suppression and treatment adherence. Methods: In this secondary analysis, four different base-learners—regression, neural networks, regression trees, and random forests—were tested and compared to find the best predictive model for both HIV viral suppression and treatment adherence (HIV specialist visit and taking HIV medications) at 12 months follow-up. A broad set of data features were used and more than 100 factors were extracted, including lab data, service utilization, substance use and risk behaviors, mental and cognitive factors, comorbid conditions and ancillary measures, demographics, and other potential mediators and moderators of HIV related outcome. Results: Preliminary selected models achieved AUC of 0.63 and 0.80 for HIV viral suppression and treatment adherence, respectively with random forest achieving the best performance. Top predictors for HIV viral suppression included HIV specialist visit, less severe substance use, readiness for substance use treatment, less alcohol consumption, and less psychological distress among others; top predictors for HIV treatment adherence included taking HIV medications, site of recruitment, physician-patient relationship, and readiness for substance use treatment among others. Conclusion: Substance use and readiness for substance treatment were important predictors of future successful HIV care for these patients. AnchorThese types of model can provide useful results to help targeting specific interventions for improving HIV outcomes, particularly for hospitalized HIV+ individuals. These methods are also capable of helping target interventions for substance users.

Financial Support: This research was funded by National Institute on Drug Abuse (R21 DA038641) and UG1DA013720. Funding for the original study was by the National Drug Abuse Treatment Clinical Trials Network under the following awards: UG1DA013720; UG1DA013035; UG1DA013034; UG1DA013727; UG1DA020024; UG1DA013732; UG1DA015831; UG1DA015815; U10DA020036; U10DA013043; U10DA013045; HHSN271200900034C/ N01DA92217 and HHSN271201400028C/ N01DA142237; and HHSN271201000024C/N01DA102221. Support from the University of Miami Center for AIDS Research (CFAR) (P30AI073961), and the Emory University CFAR (P30AI050409).

First Name: Yue

Last Name: Pan

Degrees: MA MD Ph.D etc:: Ph.D

Company Affiliation: University of Miami Miller School of Medicine

ID: 419
How is the abuse potential of opioids affected by drugs used concomitantly with opioids?

Greg Hawkins, U.S. Food and Drug Administration

Abstract Category: Theoretical/Commentary

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Drug Interactions

Abstract: Aims: To identify what drugs are commonly prescribed with opioids and to determine if the concomitant use of these drugs with opioids influences the overall abuse potential of opioids. Methods: Clinical data indicates that opioids are commonly co-prescribed with many other classes of drugs. Clinicians may be interested in how these other classes of drugs affect the abuse liability of opioids. An analysis was conducted to determine which drugs are most commonly co-prescribed with opioids and the role this may play in the development of substance use disorder. Results: Generally, these drugs fall into the classes of other analgesics, benzodiazepines, antidepressants, muscle relaxants, and anticonvulsants. A review of the abuse liability of these substances alone, and in the presence of an opioid was conducted. The data reviewed included nonclinical in vitro and in vivo studies as well as clinical data from clinical trials, medical examiner reports, and anecdotal reports of abuse. Our analysis demonstrated that abuse potential data is available for most drugs, some of which have significant abuse potential, however, little is known about how much a drug affects the abuse potential of an opioid. Conclusions: Clinical and non-clinical in vivo studies that co-administer an opioid and the most commonly co-prescribed drugs would be helpful in determining how these drugs affect the abuse potential of opioids. Recommendations or warnings can then be made to clinicians about drugs being prescribed or used concomitantly with opioids concerning the possibility that these drugs augment the abuse potential of opioids.

Financial Support: N/A

First Name: Greg

Last Name: Hawkins

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: U.S. Food and Drug Administration

ID: 420
Preliminary multimodal, multitask investigation of functional brain networks and D2/D3 receptor availability in cocaine use disorder

Patrick Worhunsky, Yale University School of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Stimulants

Topic: Imaging

Abstract: AIM: Research indicates cocaine use disorder (CUD) is associated with lower availability of D2 receptors in the dorsal striatum and greater availability of D3 receptors in midbrain regions; however, little is known regarding the functional implications of these neuromolecular alterations. METHODS: The current study aimed to investigate functional alterations associated with D2/D3 receptor availability in 16 non-treatment seeking individuals with CUD relative to 16 matched healthy comparison (HC) participants completing [11C]PHNO PET and functional MRI during a monetary incentive delay (MID) task and a cognitive control (Stroop) task. RESULTS: Multitask independent component analysis identified four brain networks that were associated with both reward- and interference-processing across participants: the cinguloinsular salience, striatoamygdala reward, right frontoparietal control, and prefrontal attention networks. In CUD relative to HC, greater engagement of the salience network during MID reward and loss anticipation ($t30 = 2.77$, $P = 0.010$) was associated with reduced D2-related binding potential (BPND) in the dorsal striatum ($r=-0.59$, $P = 0.017$) and increased impulsivity as measured by the Barratt Impulsiveness Scale ($r=0.53$, $P = 0.034$). Anticipatory engagement of the salience network was also positively associated with rapidity of cocaine self-administration ($r=0.58$, $P = 0.028$), and negatively associated with days since last use (ranging from 1 to 20 days) ($r=-0.67$, $P = 0.005$). By comparison, during Stroop performance Stroop, CUD did not differ from HC in network engagement, and regional D2/D3 BPND were not associated network engagement. However, in CUD, reduced interference-related engagement of the salience network was associated with greater compulsivity scores as measured by the Padua Inventory ($r=-0.53$, $P = 0.034$). Notably, D3-related receptor availability in the midbrain was not associated with functional network engagement during performance of either task. CONCLUSION: These preliminary findings suggest a potentially central role of the salience network in the functional implications of reduced D2 receptor availability in CUD and lend insight into overlapping neural correlates of impulsivity and compulsivity.

Financial Support: This research was funded by the National Institute on Drug Abuse (NIDA) (K01-DA042998; P20-DA027844, R03-DA027456; K12-DA00167) and by the National Center for Advancing Translational Science (NCATS) (CTSA Grant UL1-TR000142).

First Name: Patrick

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Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: Yale University School of Medicine

ID: 421
Examining interrelationships between delay discounting and simulated demand for cigarettes among pregnant women

Tyler Nighbor, University of Vermont

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Behavior

Abstract: Aim: Two common applications of behavioral economic tasks used in the study of cigarette smoking are the Cigarette Purchase Task (CPT) and delay discounting (DD). Few studies have evaluated whether combining CPT and delay discounting performance may enhance understanding of smoking beyond observations with either alone. The current investigation served as an initial evaluation of the interrelationship between delay discounting and CPT performance by examining associations between these measures with the likelihood of making quit attempts, a reliable predictor of successfully quitting smoking during pregnancy. Methods: Data were from 114 women enrolled in an ongoing smoking-cessation trial. Median splits were first used to separate CPT indices (intensity, Omax, Pmax, breakpoint, and elasticity) and discounting (overall k) into high and low groups to look for main effects of indices on antepartum quit attempts. Individual CPT indices showing main effects (intensity, Omax, breakpoint) and overall k were combined into groups (e.g., low DD, low intensity; low DD, high intensity; high DD, low intensity; high DD, high intensity) to evaluate individual differences in antepartum quit attempts. Results: Intensity, Omax, and breakpoint showed main effects in predicting antepartum quit attempts. Discounting alone did not significantly predict antepartum quit attempts; however, steep discounting was associated with a lower proportion of quit attempts among those with relatively low demand intensity ($\chi 2$ (1) = 6.56, $p < .05$; OR = 5.33, CI = 1.37– 20.82) and low Omax ($\chi 2$ (1) = 7.57, $p < .05$; OR = 6.0, CI = 1.53 – 23.46), but not those with high demand intensity or high Omax. Conclusions: CPT is associated with attempting to quit smoking in pregnancy while DD is not. Combining these two instruments reveals that DD influences quit attempts but only among lighter smokers; said differently, heavy smoking appears to override any influence of DD on quitting smoking during pregnancy.

Financial Support: Research Grant R01HD075669 from the National Institute of Child Health and Human Development, a Tobacco Centers of Regulatory Science (TCORS) award P50DA036114 from the National Institute on Drug Abuse and Food and Drug Administration, Center of Biomedical Research Excellence award P20GM103644 from the National Institute of General Medical Sciences, and Institutional Training Award T32DA07242 from the National Institute on Drug Abuse.

First Name: Tyler

Last Name: Nighbor

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: University of Vermont

ID: 422
The effects of estradiol and progesterone on proestrus-induced decreases in heroin intake

Mark Smith, Davidson College

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Opiates/Opioids

Topic: Behavior

Abstract: Aim: Preclinical, clinical, and epidemiological studies have consistently revealed sex- and gender-related differences in substance use and the development of substance use disorders. Many of these sex differences can be attributed to gonadal hormones, and the effects of ovarian hormones across the estrous/menstrual cycle have been well documented for many drugs. We recently reported that heroin self-administration decreases significantly (~70%) in female rats during proestrus. Circulating levels of estradiol and progesterone rise and fall in rapid succession during proestrus; consequently, it is not known whether estradiol or progesterone is responsible for the suppression of heroin intake during this phase. The objective of this study was to determine the effects of endogenous estradiol and progesterone on the suppression of heroin intake during proestrus through the use of receptor-selective antagonists in normally cycling female rats. Method: Female rats were implanted with catheters and trained to self-administer heroin (0.0075 mg/kg/infusion) on a fixed ratio (FR1) schedule of reinforcement. The estrous cycle was monitored daily prior to each test session. If a rat was in proestrus, it was treated with either vehicle (peanut oil, sc), the estrogen receptor antagonist raloxifene (1.0 , 3.0, or 10 mg/kg, sc), or the progesterone receptor antagonist mifepristone (3.0, 10, or 30 mg/kg, sc), 30 min prior to the session. Results: Consistent with our previous report, heroin intake decreased significantly during proestrus. Raloxifene blocked proestrus-induced decreases in heroin intake in a dose-dependent manner, whereas mifepristone failed to alter proestrus-induced decreases in heroin intake at all doses. The effects of a physiological dose of progesterone (0.125 mg mg/kg, sc) on heroin intake was examined in a subset of rats. In these rats, progesterone blocked proestrus-induced decreases in heroin intake. Conclusions: These data indicate that estradiol (and not progesterone) is responsible for proestrus-induced decreases in heroin intake in normally cycling female

Financial Support: This work was supported by US Public Service Grant DA03172 to MAS

First Name: Mark

Last Name: Smith

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Davidson College

ID: 423
Factors related to severe substance use and substance use treatment attendance among hospitalized HIV infected patients: A machine learning approach

Yue Pan, University of Miami Miller School of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Epidemiology

Abstract: Aim: Substance abuse is often associated with poor HIV medical outcomes and treatment adherence. Identification and treatment of substance use disorders at the early stage of HIV care is particularly important for successful substance use and HIV management. Methods: Four different base-learners—regression, neural networks, regression trees, and random forests—were tested and compared to find the best machine learning model to predict severe substance use problems and substance use treatment attendance at 12 months follow up from a NIDA CTN randomized clinical trial conducted among 801 hospitalized substance using HIV+ patients from 11 hospitals across the United States. More than 100 data factors were extracted, including substances used and risk behaviors, mental and cognitive factors, lab data, service utilization, adherence to HIV medication regimen, comorbid conditions and ancillary measures, demographics, and other potential mediators and moderators of substance use. Results: A total 554 of the 797 (69.5%) patients were having severe substance use problems, yet substance use treatment attendance was low (125/800, 15.6%) at baseline. The preliminary models achieved AUCs (probability of correct classification) above 0.8 for both of the outcomes with random forest achieving the best performance. Top predictors for severe substance use included perceived physical health status, having medical problems, history of alcohol, and history of substance use treatment among others; top predictors for substance use treatment attendance included cocaine use in the last 30 days, AUDIT-C score, lifetime opiate use, and housing status among others. Conclusion: These models achieved good classification of people by severity and substance treatment attendance. The approach provides support for exploratory and data mining in substance abuse research. With replication in other samples, these approaches may be useful for treatment targeting. For example, the current models could identify people who are unlikely to engage in substance use treatment for engagement interventions.

Financial Support: This research was funded by National Institute on Drug Abuse (R21 DA038641) and UG1DA013720. Funding for the original study was by the National Drug Abuse Treatment Clinical Trials Network under the following awards: UG1DA013720; UG1DA013035; UG1DA013034; UG1DA013727; UG1DA020024; UG1DA013732; UG1DA015831; UG1DA015815; U10DA020036; U10DA013043; U10DA013045; HHSN271200900034C/ N01DA92217 and HHSN271201400028C/ N01DA142237; and HHSN271201000024C/N01DA102221. Support from the University of Miami Center for AIDS Research (CFAR) (P30AI073961), and the Emory University CFAR (P30AI050409).

First Name: Yue

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Degrees: MA MD Ph.D etc:: Ph.D

Company Affiliation: University of Miami Miller School of Medicine

ID: 424
Patterns of drug use among gay men and their relationship partners: A latent class analysis

Gabriel Robles , Hunter College Center for HIV Educational Studies & Training

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Behavior

Abstract: Aim: Previous research has indicated that drug use covaries with relationship factors – including sexual agreements – among gay men. This study sought to 1) examine a latent class structure of types of drugs used among MSM and their male partners; and 2) identify any couple level sociodemographic differences in the membership of a particular drug-using class. Methods: Data were gathered from telephone screeners conducted between December 2015 and November 2016 for We Test, an RCT testing adjunct components of couples HIV testing and counseling. Participants (n = 214) had a mean age of 27.8 (SD = 6.2) and were 44.9% White, 18.2% Black, 27.1% Latino, and 9.8% other. They reported whether or not they had used marijuana, cocaine/crack, prescription drugs, MDMA, poppers, or other drugs. They also reported on their partners' use of each. Results: A five class model fit the data the best. Classes distinguished among couples in which both partners used 1) Cannabis and poppers (20.6%); 2) Cannabis and Club Drugs (9.3%); 3) Cannabis-only (35.55); and 4) Poppers-only (7.5). Class 5 was characterized by a low-probably of use across all substances (27.1%). Within couples, the analysis revealed that partners' use was highly similar. Men in the Cannabis only group were significantly more likely to be racially homopholous partners (couples where both members were White or both were racial/ethnic minority; $\chi 2(8) = 16.60$, $p < .05$) and also significantly more likely to be monogamous ($\chi 2(4) = 24.18$, p

Financial Support: National Institute on Drug Abuse, R34DA036419 (Starks, PI)

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Last Name: Robles

Degrees: MA MD Ph.D etc:: PhD, MSW

Company Affiliation: Hunter College Center for HIV Educational Studies & Training

ID: 425
Hardiness protects against future substance use in US Army Reserve/National Guard soldiers

D. Lynn Homish, State University of New York at Buffalo

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Prevention

Abstract: Significance: Combat exposed troops are at risk for higher rates of substance use including illicit drug use and nonmedical use of prescription drugs (NMUPD). Understanding resiliency factors in combat exposed soldiers can help reduce negative health outcomes. This work will examine if higher levels of hardiness predicts lower risk for illicit drug use and NMUPD. Methods: Data are from a subset of the first two years (baseline and one year follow-up) of Operation: SAFETY (Soldiers And Families Excelling Through the Years), an ongoing longitudinal study of male and female US Army Reserve/National Guard Soldiers. Logistic regression models examined the relation between baseline hardiness and NMUPD and illicit drug use at follow up (N = 260). Adjusted models controlled for sex and combat exposure at baseline. Hardiness was assessed using the Dispositional Resiliency Scale, a reliable 15-item scale measuring overall control, commitment and challenge. Results: In unadjusted logistic models, greater hardiness was protective against NMUPD (Odds Ratio (OR) = .93; 95% Confidence Interval (CI): .88, .99; p
Financial Support: Supported by R01-DA034072 to GGH

First Name: D. Lynn

Last Name: Homish

Company Affiliation: State University of New York at Buffalo

ID: 426
Learning and memory performance following acute intranasal insulin administration in abstinent smokers

Ajna Hamidovic, University of Illinois

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Treatment

Abstract: AIM: The highest incidence of relapse to smoking occurs within the first 2 weeks of a cessation attempt. In addition to enhanced nicotine craving, this phase of smoking cessation is also marked by learning and memory dysfunction. Many smokers are not able to overcome these symptoms, and they relapse to smoking shortly after trying to quit. In two clinical studies, we evaluated intranasal insulin for efficacy in improving learning and memory function during nicotine withdrawal. METHODS: Our first study was a crossover evaluation (N=19) following 20 hours of smoking abstinence. Study 2 was a parallel design study (N=50) following 16 hours of abstinence. Both studies were randomized and placebo-controlled, in which the 60 IU intranasal insulin dose was administered and cognitive function was measured using California Verbal Learning Test-II. RESULTS: As expected, study participants learned new words over the five trials ($p \leq .001$). However, learning of new words was not modified by treatment, as evidenced by a lack of main effect of treatment ($p>0.1$, both studies) or treatment x trial interaction ($p>0.1$, both studies). In addition, intranasal insulin did not improve either short- or long-delay recall ($p>0.1$, both outcomes) in either study. CONCLUSION: In summary, the one-time administration of intranasal insulin does not improve verbal learning and memory in smokers. Whether longer administration schedules may be of benefit should be evaluated in future studies.

Financial Support: R03DA036054

First Name: Ajna

Last Name: Hamidovic

Degrees: MA MD Ph.D etc:: PharmD, MS

Company Affiliation: University of Illinois

ID: 427
Application of machine learning to predict cocaine-use

Sarah Yip, Yale University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Imaging

Abstract: Aim: To determine whether a recently developed machine learning method – connectome based predictive modeling (CPM) - can be used to predict cocaine-use during 12-week treatment. CPM is a data-driven method of generating behavioral predictions from whole-brain functional connectivity matrices ('connectomes'). Methods: Neuroimaging data from 53 individuals scanned at the start of treatment for cocaine-use disorder were entered into CPM analyses to identify networks predictive of within-treatment abstinence. Abstinence was determined via results of biweekly urine toxicology testing and defined as the percentage of urines negative for cocaine during the 12-week treatment. CPM was run using leave-one-out cross-validation and model performance (i.e., correspondence between actual and predicted abstinence values) was determined using permutation-based testing. Identified networks were further applied to post-treatment neuroimaging data (n=40) to determine relationships with abstinence during follow-up. To determine generalizability, the predictive ability of identified networks was then tested in a separate sample of individuals (n=18) scanned prior to cocaine-use treatment. Results: CPM successfully predicted abstinence during 12-week treatment (percent cocaine-negative urines; p=.001). Identified networks included connections within and between multiple canonical networks, including frontoparietal, salience and subcortical networks. Network strength at post-treatment also predicted abstinence during follow-up, in both a continuous and binary manner (i.e., treatment responder versus non-responder, 75% predictive accuracy). In the independent sample, network strength predicted treatment response with 67% accuracy alone and with 78% accuracy when combined with baseline cocaine-use. Conclusion: Machine learning approaches may be used in the a priori prediction of cocaine-use outcomes. These data indicate that individual differences in large scale neural networks contribute to variability in treatment responses, and therefore may be appropriate targets for novel interventions.

Financial Support: K01DA039299, P50DA09241

First Name: Sarah

Last Name: Yip

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Yale University

ID: 428
Effects of interim buprenorphine treatment for opioid use disorder for emerging adults

Kelly Peck, University of Vermont

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: Aim. Emerging adults (EAs; 18-25 years of age) are more likely to engage in problematic opioid use relative to any other age group. Although buprenorphine maintenance is efficacious for reducing illicit opioid use among individuals with opioid use disorder (OUD), EAs may be at risk for poor treatment outcomes relative to older adults. The initial efficacy of Interim Buprenorphine Treatment (IBT) for reducing illicit opioid use and other risk behaviors was recently demonstrated (Sigmon et al., 2016). The present study compared treatment outcomes among EAs vs. adults (>25 years of age) who received IBT. Methods. Thirty-five individuals who were waitlisted for opioid treatment were assigned to receive IBT, which consisted of buprenorphine maintenance with bi-monthly clinic visits and technology-assisted monitoring. Participants completed assessments of illicit opioid use (i.e., staff-observed urinalysis) and psychosocial functioning (e.g., Beck Anxiety Inventory [BAI], Beck Depression Inventory [BDI-II], Addiction Severity Index [ASI]) at intake and Study Weeks 4, 8 and 12. Results. Relative to older adults (n = 25), EAs (n = 10) were more likely to report past-year intravenous drug use and more severe employment, legal, and psychiatric problems at intake (p's < 0 .05). Importantly, the two groups achieved similar rates of illicit opioid abstinence at 4 weeks (90% vs. 88%), 8 weeks (80% vs. 76%) and 12 weeks (60% vs. 68%). Furthermore, significant group by time interactions (p's < 0 .05) indicated that EAs experienced greater improvements on the BAI, BDI-II, and the Employment, Alcohol, and Legal ASI subscales. Conclusions. Following assignment to IBT, EAs achieved levels of illicit opioid abstinence that were comparable to adults and reported greater improvements in psychosocial functioning. Despite these improvements, EAs still reported more severe legal consequences and depressive symptoms at Study Week 12 relative to adults. Accordingly, additional mental health resources may be necessary to help EAs with OUD achieve more positive psychiatric and psychosocial outcomes.

Financial Support: This project was supported in part by National Institutes of Health research (R34DA037385, Sigmon) and training (T32DA007242) grants, as well as a National Institute of General Medical Sciences center grant (P20GM103644).

First Name: Kelly

Last Name: Peck

Degrees: MA MD Ph.D etc:: Ph.D

Company Affiliation: University of Vermont

ID: 429
Exploring trends in breathalyzer test results among participants of the Ria Treatment Program using dynamic structural equation modeling

Mary Mitchell, Friends Research Institute

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Alcohol

Topic: Treatment

Abstract: Aim: To investigate longitudinal trends in blood alcohol content (BAC) assessments using a novel telehealth treatment for alcohol use disorder. Background: Despite available efficacious treatments for alcohol use disorder (AUD), only 6.7% of the 15.1 million people diagnosed with AUD in 2015 sought treatment. Barriers such as stigma and lack of transportation make telemedicine by smartphone an attractive alternative. The Ria Treatment platform is a telemedicine program and smartphone app designed to help people with AUD decrease their alcohol consumption. Patients have phone access to a physician, obtain medication (typically oral naltrexone) to curb alcohol cravings, and receive support from a recovery coach. As part of the program, patients track their BAC through daily breathalyzer assessments linked to their smartphones. Methods: The current study examined breathalyzer data collected daily over a 6-month period, with the analysis restricted to evening breath tests (N= 230; 16,952 observations). Using dynamic structural equation modeling to analyze the ecological momentary assessment BAC data, polynomial models were fit to the data. The Deviance Information Criterion supported a fifth order polynomial model, which was subsequently used to depict BAC trends graphically. Results: The graph for the model of the quintic function (beta1 through beta5 significant at $p < .001$), showed a steep decline from days 1-37, a slight rebound effect until day 68, and a subsequent decrease until the 180th day. Therefore, a gradual decline existed in BAC over time. Descriptively, mean BAC decreased from .092 at baseline to .025 at 6 months. Conclusions: Patients using the Ria Treatment platform reduced their alcohol consumption. Limitations include missing data (both intermittent and program dropout) and a self-selected sample. More broadly, these results suggest the potential of telemedicine strategies to treat AUD.

Financial Support: Friends Research Institute

First Name: Mary

Last Name: Mitchell

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Friends Research Institute

ID: 430
Appalachian clinician's views on medication-assisted treatment for re-entering offenders

Carrie Oser, University of Kentucky

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: Aim: The opioid epidemic in rural Appalachia is having profound repercussions on the economic, criminal justice, and health care systems within Kentucky, and medication assisted treatment (MAT) is a viable option to combat the epidemic. In 2016, legislation provided funding for the Department of Corrections (DOC) to offer extended-release injectable naltrexone (XR-NTX) to eligible inmates prior to release from prison. To date, DOC data indicate low acceptance of XR-NTX among eligible Appalachian inmates with about 27% initiating XR-NTX in prison, of which the majority did not continue XR-NTX after release (72%). DOC offers no other MATs. This study aims to understand social service clinician's (SSCs) views of the clinical utility of MAT, as they are DOC employees who provide intensive and/or therapeutic social work services to re-entering offenders, including treatment referrals. Methods: Script-guided qualitative interviews were conducted with all SSCs employed in Appalachian counties (n=15) to provide feedback on MAT. The interviews were audio-recorded and transcribed. Two independent coders conducted line-by-line coding to identify key themes. Results: Five themes emerged from the data. SSCs highlighted MAT's overall effectiveness when used as prescribed and administered properly in conjunction with psychosocial therapy, but certain medications were preferred over others. Specifically, XR-NTX was viewed as the ideal MAT, followed by buprenorphine and then methadone. This hierarchy of MAT preferences was related to the third theme of SSCs concerns about opioid agonist misuse and diversion. Although the clinical utility of MAT was touted by SSCs, they still perceived MAT as a form of drug use. The final theme highlighted the SSC's need for more clinical knowledge on MAT. Conclusions: SSCs had overall positive views of MAT, but there was a clear need for additional MAT training. These themes suggest increasing education and improving communication with healthcare providers may be necessary to increase the implementation of MAT.

Financial Support: This research is supported by NIDA grants R03DA043377 and K02DA035116 (PI: Oser).

First Name: Carrie

Last Name: Oser

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: University of Kentucky

Contact Title: Assistant Professor

ID: 431
The Interplay between conduct disorder polygenic score and community disadvantage in predicting marijuana use disorders

Jill Rabinowitz, Johns Hopkins Hospital

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Genetics

Abstract: Aim: Marijuana use and disorders are major public health problems that have been widely studied. Conduct disorder (CD) and community disadvantage have been independently predictive of marijuana use, abuse, and dependence. However, less is known about whether genetic factors associated with CD and community disadvantage jointly influence risk for marijuana use problems. We examined whether a conduct disorder polygenic score (CD PGS) interacted with community disadvantage to predict lifetime marijuana use and marijuana use disorders. Method: Participants (N = 1,051, 44.2% male) were initially recruited for an elementary school-based universal prevention trial in a Mid-Atlantic city and followed through age 20. Youth reported on their substance use in adulthood. Blood or saliva samples were genotyped using the Affymetrix 6.0 microarrays. A CD PGS was created based on a genome-wide association study conducted by Dick et al., 2010. Community disadvantage was calculated based on census data when youth were in sixth grade. Logistic regressions were conducted to investigate the main effects of the predictor variables on lifetime marijuana use and marijuana abuse or dependence. The sample was restricted to African Americans given the possibility of population stratification. Results: The CD PGS did not predict any of the marijuana outcomes. There was an interaction between youth's CD PGS and community disadvantage such that youth with a higher CD PGS exhibited greater risk for a marijuana use disorder when exposed to higher neighborhood disadvantage. Conclusion: Among youth with a higher CD PGS, neighborhoods higher in disadvantage may facilitate marijuana use disorders, possibly because of greater availability of drugs and reduced access to services aimed at attenuating substance use disorders in these communities (Shanahan & Hofer, 2005). Intervention efforts aimed at mitigating marijuana use problems should consider targeting higher community disadvantage, as these areas may facilitate drug use among African-American youth with higher genetic loading for CD.

Financial Support: NIDA

First Name: Jill

Last Name: Rabinowitz

Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: Johns Hopkins Hospital

ID: 432
Differences associated with injection drug use (IDU) vs non-IDU among black heroin users in an urban setting

Mark Greenwald, Wayne State University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Ethnic Differences

Abstract: Background/Aim: Recent studies of heroin and injection drug use (IDU) regarding risk for overdose and mortality have focused primarily on White rural samples. Some researchers posit that Blacks in urban communities have been under-sampled, though disproportionately burdened by heroin use. This cross-sectional comparison of Black heroin IDU vs. non-IDU in sociodemographics, polysubstance use, and psychosocial consequences, aimed to improve understanding of risk factors in this population. Methods: Questionnaire data were obtained from community-recruited, heroin-using, non-treatment volunteers self-identifying as Black (N = 330; 67.6% males). Mean age was 46.04 (SD = 6.75) and mean education level was 12.33 (SD = 1.66) years. Respondents were asked, “Have you ever taken heroin intravenously?” (yes/no). Using chi-square tests and ANOVAs, we examined IDU group differences in gender, age, education, alcohol use, cocaine use, nonmedical opioid use, age of initial heroin use, age of any illicit drug use, frequency of recent heroin use, frequency of quit attempts, treatment sought, and lifetime history of heroin-related overdose, job loss and family, legal, and financial problems. Results: Analyses revealed significant differences between IDUs and non-IDUs for age at screening (t = -2.17, p
Financial Support: National Institute on Drug Abuse (R01 DA015362), Helene Lycaki/Joe Young Sr. Research Funds (State of Michigan), and Detroit Wayne Mental Health Authority.

First Name: Mark

Last Name: Greenwald

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Wayne State University

Contact Title: Professor and Director

ID: 434
Extended release mixed amphetamine salts and topiramate for cocaine dependence: A replication trial with frequent users

Frances Levin, Columbia University and NYSPI

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Stimulants

Topic: Treatment

Abstract: Aims : Cocaine use disorder remains an intractable problem. In a prior trial, combined amphetamine and topiramate treatment were shown to be superior to placebo in high frequency cocaine users. This replication trial targeted those who used at least 9 days in the month prior to treatment entry. Methods: For this double-blind trial, 127 treatment-seeking adults with Cocaine Dependence were randomized to a combination of mixed amphetamine salts extended-release (MAS-ER) and topiramate or placebo for 13 weeks. MAS-ER was titrated to a maximum dose of 60 mg daily and topiramate doses were titrated to a maximum dose of 100 mg twice daily. Using urine toxicology confirmed by self-report, the primary outcomes were the proportion of individuals who achieved 1) three consecutive weeks of abstinence at the end of the trial and 2) three continuous weeks during the trial. Results: The randomized sample was 76% men, 66% African-American, 18% Hispanic, 17% Caucasian, and 2% Other. The overall proportion of participants who achieved three weeks of abstinence at the end of the trial was larger in the extended-release mixed amphetamine salts and topiramate group (n=9, 14.1%) than in placebo group (n=0, 0.0%). There was a significant effect of treatment (P = .003) on outcome, while controlling for baseline cocaine use and site. Similarly, there was also a significant effect of treatment (P = .017) on the proportion of patients who achieved at least three consecutive weeks of abstinence during the study (MAS-ER and topiramate (14/64, 21.9%), compared to placebo (4/63, 6.4%)). Conclusions: The results of this study supported our hypothesis that the combination of MAS-ER and topiramate would be superior to placebo in achieving three weeks of cocaine abstinence at the end of the trial. These findings provide evidence that the combination of MAS-ER and topiramate is efficacious in promoting abstinence in cocaine-dependent individuals.

Financial Support: NIDA grants: U01 DA033310; K24 DA029647

First Name: Frances

Last Name: Levin

Degrees: MA MD Ph.D etc:: M.D.

Company Affiliation: Columbia University and NYSPI

ID: 435
Association between obesity and co-occurring heroin- and nicotine-dependence

Lian Hu, The Emmes Corporation

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Dependence

Abstract: In an unpublished analysis using data from clinical trials sponsored by National Institute on Drug Abuse (NIDA) Clinical Trials Network (CTN), we found that participants with opioid-dependence had lower prevalence of obesity compared to demographics comparable U.S. general population. However, nicotine was not routinely collected in these trials. Aim: The aim of this study was to examine whether low prevalence of obesity in the CTN population is related to co-occurring opioid- and nicotine-dependence. Methods: Data from the 2015 National Survey on Drug Use and Health (NSDUH) were used to identify obesity, past year heroin-dependence, stimulant-dependence, and nicotine-dependence. A SAS survey logistic regression model was used to examine the associations between the odds of obesity and substance-dependence. Results: Among 267,694,489 noninstitutional U.S. population age 12 years or older, 10.93% had nicotine-dependence, 0.58% had stimulant-dependence and 0.21% had heroin-dependence. While the overall obesity prevalence was 30.45%, the obesity prevalence was only 9.35% among heroin-dependent people and 5.70% among heroin- and nicotine-co-dependent people. The odds of obesity was associated with an interaction effect between heroin-dependence and nicotine-dependence (p=0.0051) after adjusting for age, race, overall health and substance-dependence other than heroin-nicotine-co-dependence. The adjusted probability of obesity among heroin- and nicotine-co-dependent individuals (2.97%, 95% CL: 1.10%-7.79%) was four to five times lower than those without the co-dependence (21.19%, 95% CL: 14.32%-30.19%) or only dependent on one of the two substances (23.46%, 95% CL: 9.31%-47.77% heroin but not nicotine dependence, and 16.17%%, 95% CL:10.69%-23.71%% for nicotine but not heroin dependence). Conclusions: Co-occurring heroin- and nicotine-dependence may partially explain the lower obesity prevalence found among heroin-dependent CTN trial participants. Future analysis of this association using CTN trial participants is needed.

Financial Support: This project is supported by the NIDA, National Institutes of Health, Department of Health and Human Services, Contract No. HHSN271201400028C / N01DA-14-2237.

First Name: Lian

Last Name: Hu

Degrees: MA MD Ph.D etc:: PhD, MPH

Company Affiliation: The Emmes Corporation

ID: 436
Solutions to financial barriers to pharmacy-based naloxone access

Jeffrey Bratberg, University of Rhode Island, College of Pharmacy

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Abstract Category: Theoretical/Commentary

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Policy

Abstract: AIM Improve pharmacy access to naloxone through policies that reduce financial barriers. Pharmacists are the most accessible healthcare providers, located on average within 5 miles of every resident in the country. Every state has implemented a policy to permit naloxone prescription by pharmacists to patients and caregivers via direct prescribing authority, standing order, and/or collaborative practice agreement. Increasing naloxone access in communities has been associated with significant declines in the incidence of overdose death. Several obstacles to naloxone access remain, including stigma, patient privacy, company policy, communication, product stocking, and cost. Naloxone products vary widely in their cash price, from $40 for 2 generic vials for intramuscular (IM) injection to $4500 for 2 IM auto-injector devices. While most public insurers cover a significant portion of the cost of these products with low to no co-pay costs, the cost to the patient with private insurance ranges from $5 to $50. Pharmacy companies lack clear guidance from pharmacy benefit managers, policymakers, and/or insurers on caregiver insurance coverage for naloxone, and often must pay the full cost of naloxone intended to be used for loved ones. CONCLUSION Several states have implemented innovative solutions to reduce or eliminate financial barriers for patients and caregivers, from Rhode Island's legislation that mandates insurance coverage of generic naloxone formulation to New York's copay assistance program that grants up to $40 to cover a co-payment for one prescription per person. Authors will discuss other policy innovations to address cost barriers to naloxone access, including Centers for Medicare and Medicaid Services (CMS) clarification on caregiver insurance coverage, Affordable Care Act provisions to reduce co-pays to zero, and negotiations for lower cost naloxone as part of a national emergency declaration.

Financial Support: R18HS024021 Agency for Healthcare Research and Quality (AHRQ) "Advancing Patient Safety Implementation through Pharmacy-Based Opioid Medication Use Research." My role: co-investigator. PI: Traci Green.

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Company Affiliation: University of Rhode Island, College of Pharmacy

ID: 437
Heroin delay discounting and impulsivity: Modulation by DRD1 genetic variation

Mark Greenwald, Wayne State University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Genetics

Abstract: Background/Aim: Dopamine D1 receptors (encoded by DRD1) are implicated in drug addiction and high-risk behaviors. Delay discounting (DD) procedures measure decisional balance between choosing smaller sooner rewards vs. larger later rewards. Individuals with higher DD (rapid discounting) are prone to maladaptive behaviors that provide immediate reinforcement (e.g. substance use). DRD1 variants have been linked with increased DD (in healthy volunteers) and opioid abuse. This study determined whether 3 dopaminergic functional variants modulated heroin DD and impulsivity. Methods: Substance use, DD, and genotype data (DRD1 rs686, DRD3 rs6280, COMT rs4680) were obtained from 96 current heroin users. Subjects completed DD during imagined heroin satiation and withdrawal. Rewards were expressed as $10 heroin bag units, with maximum delayed amount of 30 bags. Delays were 3, 6, 12, 24, 48, 72, and 96 hr. Area under the curve was calculated. Drug-use impulsivity was measured with the Impulsive Relapse Questionnaire (IRQ). Results: DRD1 rs686 (G/G, n = 21; G/A, n = 51; A/A, n = 24) was linearly related to heroin DD during heroin satiation, DRD1 x Condition $F(2,92)=3.45$, $p = .036$, controlling for estimated IQ (lower scores related to more rapid DD). DRD1 rs686 A/A (vs. G/G, with G/A intermediate) discounted heroin more rapidly, had higher IRQ Speed (returning to drug use) scores, and lower likelihood of lifetime injection heroin use (chi-square=8.65, $p = .013$). DRD3 and COMT variants were independent of DRD1 rs686 genotype and unrelated to these DD and impulsivity outcomes. Conclusion: DRD1 rs686 modulated heroin DD and was associated with greater drug-use impulsivity and lifetime injection drug use. These data support a role of DRD1 in opioid DD and impulsive behaviors.

Financial Support: NIH/NIDA 2 R01 DA015462, Helene Lycaki/Joe Young Sr. Research Funds (State of Michigan), and Detroit Wayne Mental Health Authority.

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Company Affiliation: Wayne State University

Contact Title: Professor and Director

ID: 438
Neighborhood socioeconomic disadvantage, crime, and availability associated with binge drinking from adolescence into emerging adulthood

Brian Fairman, National Institute of Child Health and Human Development

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Alcohol

Topic: Epidemiology

Abstract: AIM Whether or not neighborhood-level factors such as poverty and density of alcohol outlets lead to higher rates of problem alcohol use remains unclear. Although social disorganization theory posits that poverty and crime influence adolescent deviant behaviors like drinking, the evidence is mixed, and most studies relied on cross-sectional and ecological designs. Therefore, we examined if neighborhood socioeconomic disadvantage, crime, and alcohol outlet density are associated with binge drinking in a multilevel study of adolescents followed to early adulthood. METHODS Data were from six annual waves of the NEXT Generational Health Study, a nationally-representative cohort of 10th graders (mean age=16.2 yrs.) followed into early adulthood (mean age=21.2 yrs.; n=2750). Binge drinking within the last 30 days was based on self-report. We measured neighborhood factors by linking participants' geocoded addresses to census tract data on income, education, employment, crime, and alcohol outlets. We used multilevel mixed-effects logistic regression to relate binge drinking over time to neighborhood-level exposures controlling for individual-level demographics and family affluence. RESULTS Neighborhood socioeconomic disadvantage was related to a higher odds of binge drinking in adolescence, but statistically inconclusive. However, a lower disadvantage in early adulthood was associated with a higher odds of binge drinking (OR = 0.7). Participants who lived within 1 km of a single alcohol outlet were more likely to binge drink (OR = 1.9); those who lived close to 2 or more outlets was related to a higher (but not statistically significant) odds of binging. The impact of neighborhood crime was inconclusive. CONCLUSION Adolescents from socioeconomically advantaged neighborhoods may be at a greater risk for binge drinking, especially as they transition into early adulthood. Alcohol availability might contribute to this relationship, but differences in community alcohol norms, parental, and peer influences should be investigated. Contrary to social disorganization theory, we found no support for neighborhood crime levels influencing binge drinking outcomes.

Financial Support: This research (contract number HHSN275201200001I) was supported by the intramural research program of the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD) and the Maternal and Child Health Bureau (MCHB) of the Health Resources and Services Administration (HRSA).

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ID: 439
Circadian typology in patients in opioid agonist therapy: Associations with social jetlag and cocaine abstinence

Jeremiah Bertz, NIDA Intramural Research Program

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: AIM: Preference for the timing of activity/rest (wake/sleep) in humans varies from earlier to later in the day (i.e., morningness-eveningness), giving different circadian types (CTs). "Social jetlag" can occur when daily life demands are incongruent with CT (e.g. early-morning work for late CT). CT has previously been associated with the use of licit substances (caffeine, alcohol, nicotine). We hypothesized that CT would be associated with illicit drug use in people with opioid dependence. METHODS: 233 outpatients receiving opioid agonist therapy (buprenorphine, n = 164; methadone, n = 69) completed the Munich Chronotype Questionnaire, a 7-point CT self-report scale: early (ET, 0,1,2), normal (NT, 3), or late (LT, 4,5,6). Midsleep time and sleep duration were calculated on free days for all participants and, for those reporting working (n = 72), work days. Cocaine and illicit opioid use during treatment were assessed by thrice-weekly urinalysis. RESULTS: Considering all seven chronotypes, participants tended to rate themselves as NT (median, mode = 3). Participants' free-day midsleep times and sleep durations differed significantly by CT: LTs had later midsleep times than NTs and ETs, and longer sleep than ETs. Among workers, free-day midsleep times were later than work-day midsleep times for all CTs, and work-day midsleep times were later for LTs than ETs. LTs also had shorter sleep on work vs. free days. Finally, LTs had significantly lower rates of cocaine-negative urinalyses than ETs, with no differences among CTs in opioid-negative urinalyses. CONCLUSION: By the differences between their work and free days, working participants showed significant social jetlag, which may be particularly severe for LTs. LTs also had less demonstrated cocaine abstinence, which could be a cause and/or consequence of circadian phase delay. Future work should consider treatment difficulties experienced by LTs, as well as individual differences in objective measures of circadian rhythmicity.

Financial Support: NIDA IRP

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Company Affiliation: NIDA Intramural Research Program

ID: 440
Impact of a multi-year screening, brief intervention, and referral to treatment (SBIRT) curriculum on medical student attitudes toward patients with substance use disorders

Jeremy Kidd, Columbia University and NYSPI

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Other

Abstract: AIM: Screening, Brief Intervention, and Referral to Treatment (SBIRT) is an evidence-based framework for assessing and intervening on risky substance use. Designed for a variety of outpatient and inpatient clinical settings, it is associated with reductions in heavy drinking and improvements in treatment referral. In this evaluation study, we compared medical students' attitudes toward patients with substance use disorders (SUDs) before and after participation in a multi-year, pre-clinical SBIRT curriculum. METHODS: All first-year medical students attended a 90-minute small-group SBIRT workshop involving standardized patient role-play. The next year, these same students completed an observed standardized clinical encounter (OSCE) to evaluate their individual SBIRT performance. Each student completed the Attitudes and Opinions Survey (AOS) before and after curriculum participation. The AOS is an 8-item questionnaire that separately assesses attitudes toward alcohol and drug use using a 4-point Likert-type scale. For analysis, responses were dichotomized (strongly agree/agree and strongly disagree/disagree). Accounting for paired data, McNemar's tests were employed to evaluate for differences in students' AOS responses before and after curriculum participation. RESULTS: 173 students completed both assessments. Post-intervention, significantly more students felt prepared to diagnose and treat alcohol (34.7% vs 82.7%, $p < 0$ .0001) and drug use disorders (30.2% vs 81.87%, $p < 0$ .0001). Significantly fewer students felt that other patients' care suffered because of time spent treating patients with alcohol (21.4% vs 14.0%, p=0.03) and drug use disorders (22.1% vs 13.0%, p=0.01). There was a modest but significant increase in the percentage of students who agreed that patients with drug use disorders could meaningfully contribute to society (93.6% vs 98.3%, p=0.03). CONCLUSION: After participating in this multi-year, multi-modal, pre-clinical SBIRT curriculum, significantly more students endorsed positive views toward patients with alcohol and drug use disorders. They were also more likely to report feeling prepared to care for such patients on their medical school clinical rotations.

Financial Support: This project is funded through a grant from the Substance Abuse and Mental Health Services Administration (SAMHSA) (1H79TI025937-01, PI Levin).

First Name: Jeremy

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ID: 441
Utilization of smoking cessation interventions during VA Medical Center initial visits

David Friedrich, Medical University of South Carolina

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Treatment

Abstract: AIM Tobacco smoking remains a leading cause of preventable death world-wide despite the availability of several smoking cessation interventions. The purpose of this investigation was to evaluate the utilization of smoking cessation interventions during initial physician visits at a Veterans Affairs Medical Center. We hypothesized there would be differences in utilization of smoking cessation interventions between clinic settings. METHODS A retrospective chart review was performed to review 100 intake notes each from a VA Medical Center's primary care clinic, general mental health clinic and the substance abuse treatment and recovery clinic. Each intake note was evaluated to determine if smoking status was elicited, if the patient was advised to quit smoking and if smoking cessation pharmacotherapy was prescribed during that visit. RESULTS Smoking rates were found to be 42% in primary care, 38% in general mental health clinic and 82% in the substance use clinic. Among smokers identified in primary care clinics, 93% were advised to quit, while only 35% of smokers identified in the two mental health clinics were advised to quit (c2 = 38.36, p CONCLUSION This study demonstrated lower rates of smokers being counselled to quit smoking in mental health clinics compared to primary care and demonstrated overall low utilization of smoking cessation pharmacotherapy by physicians during initial patient visits.

Financial Support: Funding: DART R25 DA020537

First Name: David

Last Name: Friedrich

Degrees: MA MD Ph.D etc:: MD

Company Affiliation: Medical University of South Carolina

ID: 442
How do marijuana decriminalization and legalization affect disparities in adolescent marijuana arrests? Evidence from Massachusetts, Washington and Maryland

Andrew Plunk, Eastern Virginia Medical School

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Policy

Abstract: Aim: While White and Black adolescents use marijuana at roughly the same rate, Blacks are often overrepresented among those arrested for marijuana possession. Some advocates claim that marijuana legalization is the best way to address this disparity, while others favor decriminalization due to concerns about the public health impact of recreational marijuana use. It is important to study the impact of these policies as additional states consider decriminalizing or legalizing marijuana use.
Methods: We used the publically available Uniform Crime Reporting Program Data. Marijuana possession arrests are only reported during an incident without a more serious crime. Our outcome was the ratio of the Black adolescent (< 1 8) arrest rate to the White adolescent arrest rate. We focused on Massachusetts, Maryland, and Washington (decriminalization in 2008 and 2014, and legalization in 2012, respectively). Possession was decriminalized for all ages in Massachusetts and Maryland, while minors faced possible criminal penalties in Washington, with arrest occurring at the discretion of individual police officers. Results: In Massachusetts Black adolescents were 1.80 times more likely to be arrested for marijuana possession in 2007. That disparity had fallen to 1.38 by 2015. In Maryland Black adolescents were 1.41 times more likely to be arrested in 2010. By 2015, the disparity had dropped to 1.04. In Washington Black adolescents were less likely to be arrested before the policy change; the ratio of arrest rates was 0.83. By 2015 the disparity had changed: Black adolescents were 1.10 times more likely to be arrested than White adolescents. Conclusion: Decriminalization in Maryland and Massachusetts seem to have contributed to a reduction in racial arrest disparities, but legalization in Washington appears to have led to increased disparity where Black adolescents had previously been favored. This highlights the importance of anticipating how adolescents will be affected by policies that specifically target adults.

Financial Support: None

First Name: Andrew

Last Name: Plunk

Company Affiliation: Eastern Virginia Medical School

ID: 443
HIV-1 Tat protein expression elevates dopamine levels and increases morphine consumption and conditioned place preference

Thomas Cirino, University of Florida

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Opiates/Opioids

Topic: AIDS/Immune

Abstract: Aim: The HIV Transactivator of Transcription (Tat) protein is a negative allosteric modulator of the dopamine transporter (DAT), and also increase the rewarding effects of cocaine and ethanol. We hypothesized that HIV Tat expression increases dopamine levels in the brain, correlated with increased morphine consumption and conditioned place preference (CPP). Methods: The iTat mouse model (Tetracycline-sensitive GFAP promotor with the Tat transgene) was used to evaluate the effects of endogenous Tat expression on dopamine levels and the rewarding effects of morphine. Mice were administered Doxycycline (DOX, 100 mg/kg/d i.p.) or Saline (0.9%) for 7d. Brains (n=4/group) were harvested 24 h later and concentrations of DA and DOPAC were measured in the PFC and NAc using HPLC. Separate cohorts of iTat (10-26 per group) were evaluated in an unbiased morphine- or U50,488-place-conditioning paradigm with up to seven days of either DOX or Saline pretreatment. Another cohort (n = 23 total) were assessed in a Two Bottle Choice assay with morphine. Results: Dopamine content in PFC and NAc of Dox-treated iTat mice was increased by 92% and 37%, respectively, compared to control saline-treated iTat. (Student's t test, $p \leq 0.05$) Tat protein potentiated morphine-CPP in a dose ($F(4,159) = 12.3$, $p < 0$ .0001; 1-way ANOVA) and duration ($F(5,217) = 5.752$, $p < 0$ .0001; 1-way ANOVA) dependent manner, but aversion for U50,488 was blunted. Quinine consumption was consistent ($F(6,133) = 0.10$, $p=0.99$, 2-way ANOVA), but 4 or more days of exposure to Tat protein significantly increased morphine consumption ($F(1,111) = 14.0$,$p=0.003$, 2-way ANOVA), an effect that persisted into the next week ($F(1,107) = 19.4$, $p < 0$ .001, 2-way ANOVA). Conclusion: HIV-Tat expression increases dopamine levels in the mesocorticolimbic pathway, increases morphine consumption, and potentiates CPP. This suggests that Tat protein may biologically mediate the increased vulnerability to opioid abuse among people with HIV.

Financial Support: Supported by: R01 DA039044 (to JPM and MJK) and R01 DA035714 and R21 DA041932 (to JZ).

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Degrees: MA MD Ph.D etc:: BS

Company Affiliation: University of Florida

ID: 444
Samidorphan attenuates the effects of buprenorphine in rat models evaluating abuse potential

Jeanne Conway, PAREXEL, Inc.

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Opiates/Opioids

Topic: Dependence

Abstract: Aim Following the introduction of monoaminergic antidepressants in the 1950s, the common use of opioids to treat major depressive disorder (MDD) declined due to their associated risk of abuse and addiction.1 ALKS 5461, an opioid system modulator currently in development as an adjunctive treatment for MDD, is a fixed-dose combination of buprenorphine (BUP; μ-opioid receptor partial agonist and κ-opioid receptor antagonist) and samidorphan (SAM; μ-opioid receptor antagonist). SAM was added to reduce the abuse potential of BUP. We evaluated the abuse potential of BUP and SAM in rats at doses designed to emulate plasma levels in MDD patients treated with ALKS 5461. Methods Locomotor sensitization, extracellular dopamine (DA) concentrations in the nucleus accumbens shell, and brain stimulation reward were evaluated in male Sprague-Dawley or Wistar rats. Locomotor sensitization was assessed in the home-cage following 14 daily subcutaneous injections of vehicle, BUP (0.001, 0.01, 0.03, 0.1, or 0.3 mg/kg), or BUP (0.1 mg/kg) + SAM (0.3 mg/kg). Extracellular DA and its metabolites were evaluated via microdialysis for 24 hours following administration of vehicle, BUP (0.1 mg/kg) or BUP (0.1 mg/kg) + SAM (0.3 mg/kg). Brain stimulation reward was assessed in rats trained to respond utilizing a rate-frequency curve-shift paradigm. Once response behavior was stable, the effects on brain reward of BUP alone (0.1 mg/kg) and in combination with SAM (0.1, 0.3, or 1.0 mg/kg) were tested. Results SAM, in combination with BUP, significantly attenuated BUP-induced locomotor sensitization (P Conclusions These studies indicate that SAM diminishes the abuse potential associated with BUP in nonclinical models. 1. Tenore PL. J Addict Dis. 2008;27:49-65.

Financial Support: These studies were sponsored by Alkermes, Inc.

First Name: Jeanne

Last Name: Conway

Company Affiliation: PAREXEL, Inc.

ID: 445
Within-subject evaluation of interim buprenorphine treatment during waitlist delays

Taylor Ochalek, Vermont Center on Behavior and Health

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: Aims: Despite the effectiveness of opioid maintenance for opioid use disorder (OUD), delays to treatment are still prevalent in many regions of the US and associated with increased morbidity and mortality. We recently published a randomized 12-week study (n=50) demonstrating the initial efficacy of a novel, technology-assisted Interim Buprenorphine Treatment (IBT) vs. continued waitlist control (WLC) for reducing illicit opioid use and other risk behaviors during waitlist delays. Participants randomized to the WLC condition in that study were offered the opportunity to receive 12 weeks of IBT post-study, permitting an additional within-subject examination of IBT effects. Methods: Sixteen WLC participants crossed over to receive IBT at Week 12, which involved buprenorphine maintenance with bi-monthly visits for observed medication ingestion and the remaining doses dispensed via computerized device, daily monitoring calls via an Interactive Voice Response (IVR) phone system, and IVR-generated random call-backs. We evaluated biochemically-verified illicit opioid abstinence and other measures of psychosocial functioning during participants' initial WLC and subsequent IBT phases. We hypothesized that illicit opioid abstinence would be greater during their IBT vs. WLC phase. Results: During their initial WLC phase, 0%, 0% and 0% of participants provided urine specimens testing negative for illicit opioids at the 4-, 8-, and 12-week timepoints. During the cross over to IBT, participants provided significantly more negative specimens (75%, 63%, and 50%, respectively; p Conclusions: This within-subject evaluation provides additional support for the ability of interim buprenorphine dosing to reduce illicit opioid use and improve mental health outcomes during waitlist delays for more comprehensive treatment.

Financial Support: Funding: NIDA R34 DA3730385-01, NIDA T32 DA007242

First Name: Taylor

Last Name: Ochalek

Degrees: MA MD Ph.D etc:: M.A.

Company Affiliation: Vermont Center on Behavior and Health

ID: 446
Characterization of mitragynine and an analog for analgesia, tolerance, physical dependence and reinforcing liabilities in mouse models

Jay McLaughlin, University of Florida

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Opiates/Opioids

Topic: Other

Abstract: Aims: Kratom was recently proposed for DEA Schedule I designation. However, data suggests that mitragynine and 7-OH mitragynine have analgesic properties with possibly fewer liabilities. Given the advantages and liabilities of morphine, we hypothesized that components of kratom might produce efficacious analgesia with fewer liabilities (tolerance, physical dependence and drug reinforcement). Methods: C57BL/6J and knockout (KO) mice for the mu (MOR), kappa (KOR) or delta (DOR opioid receptors were administered graded subcutaneous (s.c) or intracerebroventricular doses (n=8/dose) of morphine, 7-OH mitragynine or mitragynine pseudoindoxyl and tested for antinociception in the 55oC warm-water tail-withdrawal test. Additional C57BL/6J mice so treated were evaluated for liabilities of acute antinociceptive tolerance, respiratory depression and ambulations, opioid withdrawal signs or conditioned place preference (CPP). Results: 7-OH mitragynine and mitragynine pseudoindoxyl produced antinociception 3- and 19.5-fold more potent, respectively, than morphine (ED50 = 3.91 (2.92-5.17) mg/kg) that was abolished in MOR KO mice. Neither kratom compound demonstrated acute antinociceptive tolerance, or significant respiratory depression after administration of an s.c. ED90 dose of either drug, and while there was an increase in ambulations over time, they were significantly decreased compared to the response of morphine. Like morphine, 7-OH mitragynine produced significant conditioned-place preference, but this was abolished in MOR KO mice. Of interest, mitragynine pseudoindoxyl was without effect at either 1.3 or 3.2 mg/ks s.c. place-conditioning doses. Conclusions: The kratom compounds produced more potent MOR-mediated antinociception with less tolerance and respiratory depression than morphine, and in the case of analog mitragynine pseudoindoxyl, no conditioned place preference. Overall, these data suggest that 7-OH mitragynine and mitragynine pseudoindoxyl have a superior side effect profile compared to the gold standard opioid analgesic, morphine.

Financial Support: NIDA (DA06214), McManus Charitable Trust, and Mayday Foundation (to GWP), DA 034106 (to SM), NCI CA008748 (to MSKCC) and the University of Florida (to JPM).

First Name: Jay

Last Name: McLaughlin

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: University of Florida

Contact Title: Assistant Professor

ID: 447
The rise of overdose deaths involving fentanyl and the value of early warning

Zachary Patterson, Canadian Centre on Substance Abuse

Abstract Category: Program Descriptions

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: AIM The aim of this presentation is to highlight and discuss information collected, collated, and disseminated by the Canadian Community Epidemiology Network on Drug Use (CCENDU) on the emergence of fentanyl, fentanyl analogues and other novel synthetic opioids for sale in the Canadian illicit drug marketplace. METHODS CCENDU is a sentinel surveillance network coordinated by the Canadian Centre on Substance Use and Addiction (CCSA) that is made up of representatives from across Canada. Each representative collects quantitative information on drug harms from local data sources (e.g., poison control centres, coroners) and anecdotal reports from those directly working with drug-using populations (e.g., law enforcement, harm reduction programs), and people who use drugs. This information is then collated and the risk assessed at the national level. If warranted, CCENDU issues alerts to advise first responders, healthcare practitioners, treatment providers, people who use drugs, law enforcement, and others about drug-related health threats and what can be done to prevent and reduce harms. RESULTS In July 2013, CCENDU issued an alert on the sale of fentanyl or fentanyl analogues in the illicit drug marketplace. In February 2014, CCENDU issued an alert on the appearance of fentanyl powder that had been pressed into tablets in order to resemble oxycodone tablets. A year later, CCENDU issued an alert indicating reports of increased incidences of fatal and nonfatal overdoses suspected or confirmed to involve illicit fentanyl. In August 2015, the network issued a bulletin on the increase in the number of deaths involving fentanyl in Canada between 2009 and 2014. CONCLUSION In order to effectively develop and implement interventions to prevent and reduce harms associated with substance use, the systematic collection, analysis, interpretation, and dissemination of timely and accurate informationon the availability, use and harms associated with new drugs and new drug use trends is essential.

Financial Support: Fincancial support provided by Health Canada

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Last Name: Patterson

Degrees: MA MD Ph.D etc:: Ph.D

Company Affiliation: Canadian Centre on Substance Abuse

ID: 448
High-dose opioid prescribing is associated with an increased risk of heroin use among US veterans

E. Jennifer Edelman, Yale University School of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: Aim: Despite evidence linking increased risk of opioid use disorder with specific opioid prescribing patterns, the relationship between these practices and heroin use is less understood. This study aimed to determine whether dose and duration of opioid prescriptions increases the risk of recent heroin use. Methods: We analyzed data from veterans participating in the Veterans Aging Cohort Study (VACS), a prospective cohort study of HIV-positive and -negative veterans receiving medical care at the Veterans Health Administration (VA). Survey data from six waves from 2002-2012 were linked to electronic medical records and pharmacy data. We restricted our analysis to participants who reported no non-medical prescription (NMUPO) opioid or heroin use in the year prior to baseline and with at least one prescription opioid dispensed from the VA during the follow-up period. We used weighted Cox regression to examine the relationship between two primary predictors: 1) morphine equivalent daily dose (MEDD; ≥90mg vs. < 9 0 mg), 2) days supplied of prescription opioids (≥90 days days vs < 90 days) and our outcome, self-reported recent heroin use. Models were adjusted for HIV and HCV status, sociodemographics, pain severity, post-traumatic stress disorder, depression, and substance use. Results: Of the 3833 eligible participants, the proportion who were prescribed high-dose opioids did not change from 2002-2012 and ranged from 4.4% to 5.9% (Cochran-Armitage test for trend p=0.29). Over the 10-year follow-up, 174 (4.5%) participants reported recent heroin use. In the multivariable Cox regression analysis, prior prescription of high-dose opioids (≥90mg MEDD) was an independent predictor of recent heroin use [adjusted hazard ratio (AHR) = 3.25, 95% CI = 1.85-5.70]. Receipt of a long-term prescription for opioids (≥90 days) was not significantly associated with recent heroin use (AHR = 1.09, 95% CI = 0.75-1.57). Conclusions: In this sample, high-dose prescription opioid receipt from the VA was independently associated with recent heroin use.

Financial Support: R36DA042877

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Degrees: MA MD Ph.D etc:: MD, MHS

Company Affiliation: Yale University School of Medicine

ID: 449
Synthetic and natural cannabinoid use in relation to psychosis: Evaluation of childhood trauma

Anahita Bassir Nia, Icahn School of Medicine at Mount Sinai

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Behavior

Abstract: Aim: Synthetic cannabinoids (SC) are cannabinoid receptor full-agonists, while THC, the main psychoactive compound of natural cannabis, is a partial-agonist. Increasing evidence suggests that SC use is associated with more severe psychosis compared to cannabis use. Potential contributing factors to psychosis in cannabinoid users are unknown. A history of childhood trauma is one of the proposed factors in cannabis users, but it has not been investigated in SC users. Methods: This is a cross-sectional study of psychotic patients admitted to a dual diagnosis unit at Mount Sinai Beth Israel hospital. A comprehensive psychiatric evaluation was conducted including Positive and negative syndrome scale (PANSS) for severity of psychosis and Childhood Trauma Questionnaire (CTQ) for childhood trauma. Mass spectrometry was done for full toxicology panel. Study groups were defined as SC+ (cannabis +/-), cannabis+ (SC-), and non-users (SC- cannabis-) based on the toxicology results. ANOVA was used to compare mean of PANSS and CTQ scores between study groups. Results: This is an ongoing study. So far, 60 participants were enrolled. Mean age was 35.75 (11.24), and 67.6% were men. There were no significant differences in demographic factors between study groups. Toxicology was positive for SC in 10% and cannabis in 51% of our subjects. There was a trend of more severe psychotic symptoms in SC users, compared to cannabis users and non-users, particularly for negative symptoms. History of childhood trauma, particularly emotional neglect, was significantly less severe in SC users compared to cannabis users and non-users (p-value: 0.03). Conclusion: These preliminary results suggest that psychotic SC users present with more severe symptoms in a psychiatric inpatient population, but with lower childhood trauma as compared with natural cannabis users. More insights will be obtained as the sample collection increases in order to understand the relationship between childhood trauma and use of cannabinoids.

Financial Support: Mount Sinai Addiction Institute internal funds

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Last Name: Bassir Nia

Degrees: MA MD Ph.D etc:: MD

Company Affiliation: Icahn School of Medicine at Mount Sinai

ID: 450
An effective connectivity study of emotion processing in cannabis use disorder

Liangsuo Ma, Virginia Commonwealth University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Imaging

Abstract: Aims: Previous brain imaging research has found an association between marijuana use and altered brain activation to affective stimuli in brain regions associated with a response to stress. Recent clinical data has linked marijuana use with cardiac disease linked to stress, Takotsubo cardiomyopathy, which is thought to be linked to hypothalamic response to stress. In this study, we used dynamic causal modeling (DCM) to test if the neuronal circuits underlying emotional faces are altered in subjects with cannabis use disorder (CUD), specifically related to the hypothalamus. Methods: The DCM effective connectivity (EC) analysis was conducted based on the fMRI data (downloaded from the Human Connectome Project) acquired from 23 CUD subjects and 23 controls while performing an emotion processing task with interleaving blocks showing fearful/angry faces (emotional stimuli) and blocks showing shapes (neutral stimuli). The combined emotional/neutral stimuli were used as driving input to the DCM. We focused on the modulatory changes on ECs, which was the ECs measured during emotional stimuli minus the EC measured during neutral stimuli. Results: The two groups did not show difference in behavioral performance. Compared to the controls, the CUD group showed greater modulatory change on the L amygdala to VMPFC and VMPFC to R hypothalamus ECs. There was a positive correlation between diastolic blood pressure and the modulatory change of the VMPFC to R hypothalamus EC within the CUD group (rho = 0.4580, uncorrected p = 0.0280). The correlation was not significant after Bonferroni correction. Conclusion: Marijuana users showed altered brain connectivity to the hypothalamus compared to non-marijuana users in response to emotional stimuli. These results suggest marijuana use may alter hypothalamic activation in response to stress, which could explain the clinical link between marijuana use and Takotsubo (stress) cardiomyopathy. Further research is warranted on brain connectivity related to stress in marijuana users.

Financial Support: NIDA Grants # R01 DA034131 (LM)

First Name: Liangsuo

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ID: 451
Body self-image, physical activity level and drug use in adolescence

Bruno Pinheiro, Universidade Federal de Sao Paulo

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Adolescent

Abstract: BACKGROUND: This study aims at describing the profile of satisfaction/dissatisfaction of body self-image, its relationship to physical activity, and drug usage of 754 adolescent students from primary and secondary public schools in São Paulo, Brazil. METHODS: Questionnaires were given concerning satisfaction with body self-image, pattern of use of psychoactive substances and the physical activity habits of students. To identify the adolescent's level of self-image satisfaction, the students answered the following questions: How do you see yourself when you look in the mirror? Is there anything in your body that really bothers you and would you like to change?. To assess the pattern of drug use, we used the Drug Use Screening Inventory (DUSI). To evaluate the habitual level of physical activity, the International Physical Activity Questionnaire (IPAQ) was used. RESULTS: When analyzing the satisfaction of adolescents with body self-image, a significantly higher percentage of body satisfaction was observed among boys (68%) compared to girls (40%). When analyzed the desire to modify some part of the body, it was observed that 30% of the boys wish to have a muscular body, and 30% of the girls want to lose weight. Abuse and dependence on substance were indicative when the body image satisfaction rates in the male students were at 18%, while the same indication was evident when the body image dissatisfaction in the female students were at 28%. When considering levels of body satisfaction and physical activity, most of the students practiced moderate level of physical activity (70%). In the moderate level of physical activity, 53% are partially satisfied boys and 59% are dissatisfied girls. However, the frequency of adolescents who practiced physical activity at high levels and reported being dissatisfied with their bodies was more than double (16.6%) compared to those who practiced low level of physical activity (7.9%). For both genders, the rate of dissatisfaction while practicing at high level of physical activity was higher at 20% compared to the other levels. CONCLUSIONS: The efficacy of physical activity as a protective agent becomes reduced when risky behaviors are associated with a negative self-body image. The use of substances was proportional to the level of satisfaction and dissatisfaction in both male and female students. It is suggested, finally, that further investigations are to be carried out considering the complexity that this age group presents. KEYWORDS: Adolescence, Body self-image, Physical activity, Drug use

Financial Support: Universidade Federal de São Paulo - Brasil CAPES

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Last Name: Pinheiro

Degrees: MA MD Ph.D etc:: Ph.D student

Company Affiliation: Universidade Federal de Sao Paulo

ID: 452
Behind the mask: Elevated BOLD, but not behavioral responses to pain in individuals using prescription opiates

Logan Dowdle, Medical University of South Carolina

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Imaging

Abstract: AIM: Prescription opiates have been used to treat chronic pain for over 100 years. While these drugs can mask the perception of pain, it is unclear what effect chronic use has on the neural circuity of pain. In this study, we evaluated the hypothesis that individuals using chronic opiates for pain would have similar behavioral and brain responses to acute pain compared to controls. METHODS: Healthy controls (n=14) and prescription opiate users (n=14) underwent a fMRI thermal pain and negative reinforcement learning task. Temperatures were individually calibrated for each individual and delivered in 14 second blocks to the left wrist. After a series of baseline thermal events, participants were instructed to guess two digits during thermal stimulation. Correct guesses reduced the heat, a form of negative reinforcement. RESULTS: Prescription opiate users reported significantly greater current pain compared to controls on the Brief Pain Inventory, 3.4±3.4, and 0.2±0.8 respectively (p CONCLUSION: Despite no differences between self-reported measures of pain, we found that prescription opiate users had higher pain network activity. These findings underscore the need to develop novel treatments that target the neural mechanisms/circuitry of pain perception rather than masking the symptoms of the pain. Further work will be needed to determine if these changes make individuals more vulnerable to future pain disorders or transition to non-medical prescription opiate use.

Financial Support: F31DA043330

First Name: Logan

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Degrees: MA MD Ph.D etc:: B.S.

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ID: 453
Early trauma exposure, neural response inhibition, and risk for substance use disorders in adolescence and young adults: Trajectories of frontal oscillations during a Go/NoGo task

Jacquelyn Meyers, State University of New York Downstate Medical Center

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Alcohol

Topic: Other

Abstract: AIM: Trauma, particularly when experienced early in life, may alter neurophysiological and behavioral development, thereby increasing risk for substance use disorders (SUD) and related psychopathology. However, few studies have empirically examined this using well characterized, genetically informative, developmental samples that are followed longitudinally. METHODS: We examined the association of assaultive, non-assaultive, and sexual-assaultive trauma prior to age 10 with developmental trajectories of brain function during response inhibition, by measuring electrophysiological theta and delta oscillations in an equal probability Go/NoGo task. Data were drawn from the Collaborative Study of the Ge netics of Alcoholism's prospective cohort, comprising offspring from high-risk families who were aged 12-22 at enrollment, with follow-ups at two-year intervals since 2004. Additionally, we investigated other important predictors of neurophysiological functioning (e.g., gender, substance use, impulsivity, parental substance use disorders, polygenic scores based on alcohol and cannabis use GWAS). Finally, we examined associations of neurophysiological functioning with DSM-5 symptoms of alcohol use disorder (AUDsx) and other SUDs (cannabis, cocaine, opioids, stimulants, sedatives; SUDsx), externalizing (EXT; conduct disorder, oppositional defiant disorder) and internalizing (INT; mood disorders and suicidal ideation) psychopathology. RESULTS: The typical developmental change in frontal theta activity observed throughout adolescence and young adulthood occurred at a slower rate among those who had been exposed to early sexual assault, but not other types of trauma. Associations were greater among women and participants with greater polygenic scores for alcohol use. Effects remained after accounting for parental SUD, participants' alcohol and drug use, and other types of trauma, but not when models included impulsivity. While mean level of frontal theta across age was associated with SUDsx and EXT, change in NoGo frontal theta development was associated with increased risk for AUDsx and INT. CONCLUSION: Changes in neurocognitive development related to early sexual trauma exposure may increase risk for mental health and substance use problems in young adulthood.

Financial Support: JLM is supported by a K01 from NIDA (K01DA027914)

First Name: Jacquelyn

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ID: 454
Greater oxycodone self-administration by male and female A112G mice than wild type A112A mice

Yong Zhang, The Rockefeller University

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Opiates/Opioids

Topic: Behavior

Abstract: Aim: Mu-opioid receptors (MOPRs) are the target of the prescription opioid oxycodone. The gene coding for the human MOPR (OPRM1) has an important functional single nucleotide polymorphism (SNP), A118G. Some studies found that OPRM1 A118G genotype results in increased risk of opioid addiction in humans. A112G (G/G) mice, harboring a functionally equivalent SNP in Oprm1 with a similar amino acid substitution, are mouse models of human A118G carries. The aim of this study is to examine oxycodone self-administration (SA) behavior in male and female G/G versus wild type (A/A), mice in extended (4 h) SA sessions. Methods: Adult male and female G/G and A/A mice were allowed to self-administer oxycodone (0.25 mg/kg/infusion, FR1, with a nose poke response) for 4 h/day, for 10 consecutive days. The mice were then withdrawn from oxycodone SA, and stayed in home cage for 10 days. Following home-cage withdrawal, the mice were re-exposed in oxycodone SA in the same paradigm, for further 10 consecutive days. Results: Male and female G/G mice responded for oxycodone significantly more than A/A mice, in the initial oxycodone SA sessions and in the subsequent oxycodone SA re-exposure sessions. Moreover, G/G mice had greater oxycodone intake during the re-exposure period than during the initial exposure period. This was also found in the male and female A/A mice. There were no significant sex differences in each genotype. Conclusion: These are the first studies to examine oxycodone SA in the A112G mouse model. These studies may lead to a better understanding of prescription opioid self-exposure and re-exposure behavior in carriers of the A118G SNP.

Financial Support: NIH 1R01DA029147 (YZ) and the Dr. Miriam and Sheldon G. Adelson Medical Research Foundation (MJK).

First Name: Yong

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Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: The Rockefeller University

ID: 455
The association of marijuana use and mental health symptoms with pain severity among persons living with HIV infection: Results from a community-recruited sample

Verlin Joseph, University of Florida

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Epidemiology

Abstract: AIM: People living with HIV (PLWH) are more likely to suffer from chronic pain and mental illness compared to the general public and may utilize alternative medications such as marijuana. However, little is understood about marijuana use, mental health, and patterns of pain among PLWH. Thus, we determine the association of marijuana use and other illicit drug use, anxiety, and depression among PLWH who report pain. METHODS: Data were derived from PLWH (N=810) recruited from community health centers across Florida. Participants completed questionnaires regarding chronic pain, substance use, HIV clinical outcomes, mental health, and demographic information. The Brief Pain Inventory (BPI) short form was used to define mild and severe pain. Multinomial logistic regression analyses were utilized to assess the relationship between marijuana and other illicit drug use, mental health, and mild or severe pain. RESULTS: Severe, mild, and no pain was reported by 9%, 35%, and 56% of the sample respectively. Regarding substance use and mental health, 36% of participants reported currently using marijuana (recreational only 29%, 7.3% medical reasons only), 36% reported illicit drug use (not including marijuana), 31% reported anxiety, and 32% reported depression. While marijuana use was not independently associated with severe pain in our sample, illicit drug use was. Participants who reported using any past year illicit drug use had a 2.17 (95%CI =1.10, 3.93) higher odds of reporting severe pain than those who did not report illicit drug use. Participants who reported symptoms of severe/moderate anxiety or PTSD had a 2.86 (95%CI = 1.46, 5.58) and 2.17 (95%CI = 1.10, 4.28) odds of reporting pain respectively. CONCLUSION: Marijuana use has been theorized to be utilized as pain management among PLWHA, we found that current use was not significantly linked with pain severity in this cross-sectional survey. However, our study noted psychological factors as strong correlates of pain severity.

Financial Support: NIAAA U24 AA022002 - Southern HIV Alcohol Research Center (SHARC) admin and research support core NIAAA U24 - Behavioral Science and Biostatistics Resource Core for Alcohol-HIV Research RO1 - NIDA NIH - Health Effects of Marijuana Use in Persons Living with HIV/AIDS

First Name: Verlin

Last Name: Joseph

Company Affiliation: University of Florida

ID: 456
SNC80, a delta opioid receptor agonist, reduces cocaine-induced increases in CRF mRNA in female rats

Krista Connelly, Lewis Katz School of Medicine at Temple University

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Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Stimulants

Topic: Neurobiology

Abstract: AIM: SNC80 attenuates cocaine withdrawal-induced anxiety in rats; however, the mechanism underlying this effect is unknown. Cocaine withdrawal increases stress-related gene expression. To test if SNC80 normalizes expression of CRF, CRFR1, or FKBP5, this study determined the time course of gene regulation following withdrawal from cocaine, and the ability of SNC80 to reverse cocaine-induced increases in CRF mRNA. METHODS: Male and female adult Sprague Dawley rats (N=5-6/group) were injected with saline or cocaine (15mg/kg) in a binge-pattern for 14 days. Brains were collected 30 minutes, 24 hours, 48 hours, or 7 days after the last injection. A separate cohort (N=7-8/group) received SNC80 (10mg/kg) twice after the last injection, and brains were collected at 24 hours withdrawal. The central amygdala (CeA), bed nucleus of the stria terminalis (BNST), and paraventricular nucleus of the hypothalamus (PVN) were microdissected and expression levels of CRF, CRFR1, and FKBP5 measured by quantitative RT-PCR. RESULTS: Following chronic cocaine, CRF mRNA was significantly (2-way ANOVA) elevated in the BNST at 30 minutes withdrawal ($p=0.0015$), CeA at 24 hours ($p=0.048$) and PVN at 48 hours ($p=0.040$). CRF mRNA was elevated at 24 hours in the BNST of females ($p < 0.01$), but not males. FKBP5 mRNA was elevated in the PVN ($p < 0.0001$) and BNST ($p < 0.0001$) 30 minutes following cocaine and remained elevated in both regions (PVN $p=0.0015$, BNST $p=0.0025$) at 24 hours. FKBP5 mRNA was also elevated in the CeA of females at 30 minutes ($p < 0.05$). In the CeA of female rats, a significant interaction ($p=0.013$) was found between chronic cocaine and SNC80 administration. Specifically, SNC80 significantly ($p < 0.01$) reversed the increase in CRF mRNA produced by cocaine withdrawal. CONCLUSION: These results provide insight into the anxiolytic effect of SNC80 following chronic cocaine, and suggest that delta opioid receptor agonists may be useful therapeutics for cocaine withdrawal-induced anxiety, particularly in females.

Financial Support: Supported by NIDA R01 DA018326, T32 DA007237, and P30 DA013429

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ID: 457
Tobacco product abuse liability: State of the science and major challenges

Jack Henningfield, Pinney Associates, Inc.

Abstract Category: Theoretical/Commentary

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Other

Abstract: AIM: Assess the state of abuse liability science as it is being adapted to evaluate a broad range of tobacco product types and questions that must be addressed to support FDA's tobacco product regulatory efforts. Tobacco product specific challenges, and research needs will be presented. METHOD: Researchers representing several areas of tobacco abuse liability assessment will each contribute sections to this poster to provide an overview that may serve other researchers, FDA, and NIDA which is funding much of such research. RESULTS and CONCLUSIONS: Nicotine meets criteria as a dependence producing substance. However, the risk of use and dependence varies widely as function of the formulation and product characteristics (which determine dose pharmacokinetics), the ease of use to obtain desired levels of nicotine, the overall satisfaction provided by the product, and the various determinants of product appeal and attractiveness that contribute to initiation of use, persistence of use, dependence, and difficulty achieving abstinence. The Family Smoking Prevention and Tobacco Control Act requires the FDA to evaluate products taking these factors into account. Tobacco and nicotine product abuse liability have been assessed for decades according to approaches developed for other drugs and products, and much of the FDA's 2017 Guidance: Assessment of the Abuse Potential of Drugs may be applicable to tobacco products. However, tobacco and nicotine delivering products are evolving rapidly and pose many challenges for abuse liability efforts. This poster will summarize the state of the science and major challenges relevant to tobacco/nicotine product abuse liability, focusing on three key areas of assessment: preclinical, clinical, and consumer appeal and attractiveness factors that influence use and abuse liability. This poster is also intended to contribute to research needs assessment by the National Institute on Drug Abuse and to the potential development of guidance documents by the FDA.

Financial Support: None

First Name: Jack

Last Name: Henningfield

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Pinney Associates, Inc.

Contact Title: Vice-President Research and Health Policy

ID: 459
Lower cortical dopamine D2 receptor availability in smokers compared to nonsmokers and the relationship to cognitive function

Yasmin Zakiniaeiz, Yale University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Imaging

Abstract: Aim: The mesostriatal dopamine system drives the reinforcing effects of tobacco smoking but the mesocortical dopamine system—including the dorsolateral prefrontal cortex (dlPFC)—is critical for cognitive function and inhibitory control. Positron emission tomography (PET) studies have previously reported lower striatal dopamine D2 receptor (D2R) availability in individuals with drug and alcohol use disorders including tobacco smokers, compared to healthy controls. However, the effects of drug abuse on cortical D2R availability have not been studied. The goals of this study were to investigate dlPFC D2R availability with PET imaging of male and female tobacco smokers as well as nonsmokers, and to determine relationships with cognitive function. Methods: Twenty-four tobacco smokers (12 female) and twenty-five sex- and age-matched nonsmokers participated in a single PET scan with the high-affinity dopamine D2/3 radioligand, [11C]FLB-457. On the day of the PET scan, subjects completed a cognitive battery, including short- and long-term working memory tasks. We compared non-displaceable binding potential (BPND), an index of D2R availability, among male and female smokers and nonsmokers in dlPFC. PET data were analyzed with the simplified reference tissue model using the cerebellum as a reference region. We used linear regression to determine the relationship between dlPFC BPND and cognitive task performance. We also investigated sex differences in task performance. Results: Smokers have significantly lower D2R availability in dlPFC (BPND = 0.76±0.45) than nonsmokers (BPND = 0.92±0.44), $p = 0.016$. In smokers only, lower D2R availability was associated with poorer performance on cognitive tasks, i.e., less correct responses on short- ($R2 = 0.22$, $p=0.037$) and long-term working memory tasks ($R2 = 0.52$, $p = 0.0004$). We also observed sex differences in smokers' performance on cognitive tasks. Conclusion: Smokers have lower D2R availability in dlPFC than nonsmokers. The lower the D2R availability in smokers, the poorer their performance on cognitive tasks. There is also sex difference in cognitive performance in smokers. We are currently examining the relationship between dopamine receptor availability and cognitive function by sex.

Financial Support: Research was supported by P50DA033945 (McKee), K02DA03175 (Cosgrove), K01 AA024788 (Hillmer), NSF GRFP (Zakiniaeiz) and Gruber Science Fellowship (Zakiniaeiz).

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ID: 460
Interactions between reinforcement history and drug-primed reinstatement: Studies with MDPV and mixtures of MDPV and caffeine

Michelle Doyle, University of Texas Health Science Center

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Polydrug

Topic: Drug Interactions

Abstract: AIM “Bath salts” preparations often contain multiple psychoactive compounds, including multiple synthetic cathinones (e.g., 3,4-methylenedioxypyrovalerone [MDPV]), or cathinones and caffeine. Caffeine is thought to be added because it is cheap and can mimic and/or enhance some of the stimulant-like effects of cathinones. Since caffeine is widely-used, and cathinone users report high amounts of drug craving, these studies aimed to evaluate whether the composition of the self-administered drug(s) (MDPV, or MDPV+caffeine) alters the effectiveness of MDPV, caffeine, or mixtures of MDPV+caffeine to reinstate responding. METHODS Male Sprague Dawley rats (n=40) were trained to self-administer MDPV (0.032 mg/kg/inf) or a mixture of MDPV+caffeine (0.0288 mg/kg/inf + 0.66 mg/kg/inf, respectively). Following stable responding, rats underwent extinction for at least 7 sessions and until responding was RESULTS Pretreatment with MDPV or caffeine dose-dependently reinstated responding on the previously reinforced lever in both groups, and these effects did not differ as a function of self-administration history. Both compounds were also equally effective at reinstating responding. When combined, MDPV+caffeine mixtures were more effective at reinstating responding than predicted for an additive interaction. CONCLUSION These findings suggest that although drug self-administration history (MDPV or MDPV+caffeine) did not differentially impact the effectiveness of MDPV or caffeine to reinstate responding, when administered as a mixture, MDPV+caffeine produced a supra-additive increase in responding. These data are consistent with previous studies demonstrating pharmacological interactions between MDPV and caffeine, and suggest that the composition of “bath salts” preparations might contribute to relapse-related behaviors.

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Last Name: Doyle

Degrees: MA MD Ph.D etc:: BS

Company Affiliation: University of Texas Health Science Center

ID: 461
N-Acetylcysteine exacerbates cue-induced reinstatement of nicotine seeking in an estrous cycle phase-dependent manner

Cassandra Gipson-Reichardt, Arizona State University

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Nicotine/Tobacco

Topic: Behavior

Abstract: AIM: Preclinical studies have revealed an important role of glutamate in nicotine relapse vulnerability. N-Acetylcysteine (NAC) is a glutamatergic compound that has shown some clinical utility in the treatment of substance use disorders. Clinical studies suggest that the menstrual cycle phase in women can affect drug craving and relapse following abstinence. As well, no clinical studies employing NAC as an addiction treatment strategy have explored potential gender differences, thus it is unclear if NAC has differential efficacy in the treatment of nicotine relapse in women which has been found for other pharmacotherapies. We therefore investigated the ability of NAC to reduce cue-induced nicotine seeking in female rats, and also determined if NAC impacts nicotine seeking in an estrous cycle phase-dependent manner. METHODS: Young adult female Sprague Dawley rats were trained to self-administer nicotine (0.02 mg/kg/infusion, paired with light + tone cues) for at least 10 sessions, followed by extinction for at least 14 sessions. Rats were injected with NAC (100 mg/kg, i.p.) or vehicle (saline) 2-hr prior to the last 5 extinction sessions, followed by cue reinstatement testing. Rats were swabbed for vaginal cytology to determine estrous cycle status throughout the duration of the study. RESULTS: Following vehicle injections, rats that were in a non-estrus phase (metestrus + diestrus) exhibited significant cue-induced reinstatement compared to extinction responding ($p < 0$ .01), whereas females in estrus did not significantly reinstate to conditioned cues. Although NAC treatment did not change estrous cyclicity in nicotine-extinguished females, NAC eliminated the estrous cycle phase-mediated differences in nicotine seeking. Specifically, females in the estrus cycle phase significantly reinstated nicotine seeking behavior compared to extinction following NAC ($p < 0$ .001). CONCLUSIONS: Our results show that NAC treatment may exacerbate nicotine seeking vulnerability when females are in estrus. This could have important clinical implications for use of NAC as a pharmacotherapy in freely cycling female smokers.

Financial Support: ASU Institute for Social Science Research Seed Grant, NIDA R00 DA036569 (to CDG).

First Name: Cassandra

Last Name: Gipson-Reichardt

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Arizona State University

ID: 462
Externalizing and internalizing symptoms as common and specific candidate endophenotypes for heroin and amphetamine dependence

Jasmin Vassileva, Virginia Commonwealth University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Neurobiology

Abstract: AIMS. Research reveals distinct psychiatric profiles among opiate and stimulant dependent individuals; however, results have been inconclusive. The aim of the present study is to examine sibling correlations on externalizing and internalizing psychiatric symptoms among individuals with 'pure' heroin and amphetamine dependence in Bulgaria, in order to explore their utility as common vs. specific endophenotypes for opiate and stimulant dependence. METHODS. Pearson correlations between individuals with heroin (N=34) and amphetamine (N=28) dependence and their non-dependent siblings were run on 5 externalizing and 7 internalizing measures. RESULTS. Among heroin sibling pairs, there were significant negative cross-trait correlations between ADHD on the Wender Utah Rating Scale (WURS) and the affective/interpersonal Factor 1 of the Psychopathy Checklist: Screening Version (PCL:SV), and between the WURS and antisocial personality disorder (ASPD). There were also significant positive cross-trait correlations between Hopelessness on the Substance Use Risk Profile Scale (SURPS-H) and the Toronto Alexithymia Scale (TAS), and significant positive within-trait correlations on the SURPS-H and SURPS Anxiety Sensitivity (SURPS-AS). In contrast, among amphetamine sibling pairs, there was a significant positive cross-trait correlation between the WURS and the PCL:SV Factor 1 and within the Anxiety Sensitivity Index (ASI), and significant negative cross-trait correlations between State and Trait Anxiety. CONCLUSIONS. Different patterns of sibling correlations between externalizing and internalizing psychiatric symptoms emerged that appear to be common and specific for heroin and amphetamine dependence. Among externalizing measures, a negative relationship between psychopathy and ADHD and between ASPD and ADHD was specific to sibling pairs where one has heroin dependence, whereas a positive relationship between psychopathy and ADHD was specific to sibling pairs where one has amphetamine dependence. Among internalizing measures, anxiety sensitivity was common to both heroin and amphetamine sibling pairs; whereas affective symptoms such as hopelessness and alexithymia were specific to heroin sibling pairs.

Financial Support: R01DA021421 (J.V.) from NIDA and Fogarty International Center

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Last Name: Vassileva

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Virginia Commonwealth University

ID: 463
Oxycodone self-administration on a progressive-ratio schedule is reduced by contingent administration of the atypical kappa-opioid agonist, nalfurafine, in rhesus monkeys

Carlos Zamarripa, University of Mississippi Medical Center

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Opiates/Opioids

Topic: Behavior

Abstract: Aims Prescription painkillers like oxycodone target the mu-opioid receptor to produce antinociception. However, oxycodone produces reinforcing effects and has significant abuse liability. As such, strategies for reducing the reinforcing effects of opioid painkillers that do not reduce their antinociceptive effects are needed. We recently reported that the kappa opioid agonist, nalfurafine, reduced the reinforcing effects of oxycodone self-administration without attenuation of pain effectiveness in rats. In the present study, we tested the generality of these findings in nonhuman primates (NHPs), hypothesizing that nalfurafine would decrease the reinforcing effects of oxycodone in NHPs. Methods Male Rhesus monkeys (n=3) were tested to assess the reinforcing effects of oxycodone/nalfurafine combinations using a progressive-ratio (PR) self-administration procedure. Full dose-effect relations were determined for i.v. oxycodone (0.01-0.1 mg/kg/inj) available alone or co-administered with nalfurafine (0.1-0.32 ug/kg/inj). PR-breakpoint data were analyzed with a repeated-measures ANOVA, and means were compared to both saline and oxycodone alone with Bonferroni tests. Results and Conclusion Nalfurafine dose-dependently decreased the reinforcing effects of oxycodone by reducing injections earned relative to oxycodone alone. The most effective combination was with 0.32 μg/kg nalfurafine, which produced the lowest rate of responding across all subjects. These results suggest that the drug combination of oxycodone/nalfurafine may serve as an effective strategy for reducing the abuse liability of oxycodone.

Financial Support: R01-DA039167 to KBF from National Institute of Drug Abuse

First Name: Carlos

Last Name: Zamarripa

Company Affiliation: University of Mississippi Medical Center

ID: 464
How do we measure craving? Intensive longitudinal assessment of craving and cannabis use among young adults with problematic use.

Matthew Enkema, University of Washington

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Treatment

Abstract: AIMS Problematic cannabis use is linked to negative health outcomes, and prevalence of problematic use peaks during young adulthood. Young adulthood is a sensitive psychosocial developmental period, and thus an important period for prevention and intervention programs to reduce vulnerability to and severity of problematic use. The allostatic model suggests that people may use cannabis to find relief from unpleasant experiences such as craving. Although craving management interventions have demonstrated efficacy, the mechanisms of action have proved to be difficult to isolate using typical retrospective self-report assessment methods. This may be due to the lack of consistent predictive validity for these measures. The purpose of the current study is to compare the typical method of craving assessment, retrospective self-report, to intensive longitudinal assessment. METHODS Participants (N=86) were students at the University of Washington using cannabis 2 or more days per week, with problems related to use, and interest in changing use. Baseline retrospective self-report craving questionnaires were completed, followed by a two-week ecological momentary assessment period of craving and use, and a follow-up questionnaire one month later. Outcomes were any use reported at the same prompt for the EMA analysis, and total days of use during the previous month at follow-up for the retrospective analysis. RESULTS Results from analysis of intensive longitudinal data revealed that a one unit increase in craving increased probability of use (OR=1.83, p.05, 95% CI [-0.04, 0.72]). CONCLUSIONS Findings support craving as an appropriate target for prevention and intervention efforts to reduce the prevalence and severity of problematic cannabis use. Additionally, intensive longitudinal assessment may be a more appropriate method, with improved sensitivity of measurement, and enhanced validity.

Financial Support: Financial support for the current research was provided by the National Instutes of Health; the National Institute on Drug Abuse. (F31DA042503 PI: Enkema)

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ID: 465
Prevalence and predictors of driving after prescription opioid use in an adult emergency department sample

Aaron Dora-Laskey, University of Michigan

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Behavior

Abstract: Aim: Prescription opioid use (POU) and driving is a public health concern given the risks associated with drugged driving, but remains under-investigated. The present study examined prevalence and correlates of driving after taking prescription opioids (DAPO) among adults seeking treatment in an emergency department (ED). Methods: Participants (aged 25-60) seeking ED care at a tertiary Level-1 trauma center completed a computerized cross-sectional survey. Validated instruments measured POU, driving behaviors, and risky driving. Patients reporting past 3-month POU and regular driving (at least twice weekly) were administered an extended questionnaire measuring depression, pain, and substance use. Results: Among screened participants [N=756; Mage = 42.8 (SD=10.4)], 38.8% reported past 3-month POU (30.8% of whom used daily), and 14.7% reported past 3-month DAPO. Of those with DAPO, 53.2% reported driving under the influence of opioids. Among the screening sample, 22.9% (N=173) were eligible for the extended questionnaire. Unadjusted analyses demonstrated that participants reporting DAPO were more likely to use opioids daily (50.6% vs. 14.9%), have higher levels of opioid misuse [M=0.71(SD=0.78) vs. M=0.28(SD=0.40)], have higher rates of chronic pain (80.7% vs. 42.5%), and have higher levels of risky driving [M=0.41(SD=0.39) vs. M=0.22(SD=0.24)] compared to patients not reporting DAPO (all $p < 0$ .001). Adjusting for age, sex, employment, and insurance in a logistic regression model, patients reporting DAPO were more likely to report daily opioid use (OR=4.50,[95%CI: 1.88-10.76]), prior diagnosis of chronic pain (OR=3.70,[95%CI: 1.61-8.51]), and higher levels of other risky driving (OR=5.98, [95%CI: 1.36-26.23]). Alcohol and marijuana use, depression, and opioid misuse were not associated with DAPO. Conclusion: Nearly 1 in 6 adult ED patients in this study reported DAPO, a majority of whom reported driving under the influence of opioids. Given the risks associated with opioid-intoxicated driving and other risky driving behaviors, the ED may be an optimal site for addressing DAPO behaviors with targeted behavioral interventions.

Financial Support: CDCP 1R49CE002099, NIH/NIAAA T32AA007477

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ID: 466
A gender paradox in overdose among young opioid users

Kelly Quinn, NYU Rory Meyers College of Nursing

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Sex Differences

Abstract: AIM To explore gender differences in hypothesized mental health and sexual victimization risk factors for overdose among young opioid users. METHODS We used self-reported data from a cross-sectional respondent-driven sample of 539 people aged 18-29 in New York City in 2014-15 who reported 30-day use of nonmedical prescription opioids or heroin. We estimated gender-stratified prevalence of 14 potential correlates including 10 lifetime mental health measures (diagnosis, treatment, depression, anxiety, hallucination, traumatic event, suicidal thoughts, suicide attempt, self-harm, eating disorder); adverse childhood experiences (ACE); offered drugs/money for sex while using drugs; sexually violated while using drugs; and traded sex for drugs/money. Logistic regression models estimated odds ratios (OR) and 95% confidence intervals (CI) and final models adjusted for race/ethnicity, income and education. RESULTS Prevalence of overdose was high and similar for females (47%) and males (42%). Females had statistically significant higher prevalence of all potential correlates. Bivariable associations showed all to be statistically significant, with increased odds of overdose ranging from 85-277% for binary correlates and 16% increased odds for every increase of 1 ACE. We observed no statistically significant gender modification across associations. In a model without sociodemographics, only anxiety was a significant predictor [OR=1.99 (95% CI: 1.15-3.45)]. In the fully-adjusted model three correlates were weakly associated with overdose: Anxiety OR=1.87 (95% CI: 1.03-3.38); Violated while using drugs OR=1.87 (95% CI: 1.01-3.45); and ACE OR=1.09 (95% CI: 1.00-1.20). CONCLUSION Despite higher prevalence of numerous correlates of overdose among females, overdose prevalence is similar by gender, as is the strength of the associations of the predictors with overdose. These factors may be distal predictors whose influence is mitigated by more proximal factors. Future research should examine possible protective factors such as resiliency, social support, and harm reduction knowledge that may attenuate the influence of psychological factors on overdose among females.

Financial Support: NIDA R01DA035146, NIDA T32DA007233

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ID: 467
Personality and neurocognitive dimensions of impulsivity as candidate endophenotypes specific to heroin and amphetamine dependence

Jasmin Vassileva, Virginia Commonwealth University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Neurobiology

Abstract: AIMS. Impulsivity is among the strongest candidate endophenotypes for substance dependence. However, research progress has been slowed by the heterogeneity of both impulsivity and substance dependence. The present study addresses these limitations by comprehensively assessing different impulsivity dimensions among individuals with substance dependence in Bulgaria, the majority of whom are mono-dependent on either heroin or amphetamine. The aim is to explore various personality and neurocognitive dimensions of impulsivity as endophenotypes for heroin and amphetamine dependence by examining sibling correlations. METHODS. Pearson correlations between individuals with heroin and amphetamine dependence (N = 34 and 28 individuals, respectively) and their non-dependent siblings were run on 7 neurocognitive measures and 7 personality measures of impulsivity. RESULTS. The heroin sibling pairs were significantly positively correlated on the Sensation Seeking Scale (SSS), the Cambridge Gambling Task (CGT), and the Balloon Analogue Risk Task (BART). The amphetamine sibling pairs were marginally significantly positively correlated on the Barratt Impulsiveness Scale (BIS) and significantly positively correlated on the Go/No Go (GNG) Task. CONCLUSIONS. Substance-specific dimensions of impulsivity appear to aggregate among siblings where one has substance dependence and the other is non-affected. High sensation seeking (SSS), impulsive choice (CGT), and risk-taking propensity (BART) were specific to sibling pairs where one has heroin dependence. High trait impulsivity (BIS) and impulsive action (GNG) were specific to sibling pairs where one has amphetamine dependence. These findings provide preliminary evidence for the differential utility of various dimensions of impulsivity as candidate endophenotypes for specific substance dependencies.

Financial Support: R01DA021421 (J.V.) from NIDA and Fogarty International Center

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ID: 469
Baseline characteristics predictive of successful outpatient transition onto extended-release naltrexone

D. Andrew Tompkins, University of California San Francisco School of Medicine

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: Aim: To identify baseline characteristics predictive of receiving and tolerating a first injection of extended-release naltrexone (XR-NTX) in an outpatient setting. Introduction: XR-NTX, in conjunction with counseling, helps prevent relapse to opioid dependence, but actively using persons require a transition period of opioid abstinence. A phase 3 randomized controlled trial (ClinicalTrials.gov, NCT02537574) showed similar induction rates (total=44.1%) for 3 outpatient transition regimens using combinations of oral naltrexone, buprenorphine, and/or placebo plus ancillary medications over 8 days. The primary end point of that trial was not met. Methods: This post hoc analysis (N=337) of 3 pooled outpatient transition regimens evaluated the association between baseline characteristics and the receipt and tolerance of a first XR-NTX injection, demonstrated by a 1-hour post-injection Clinical Opiate Withdrawal Scale (COWS) score ≤12 or Subjective Opiate Withdrawal Scale (SOWS) score ≤10. Twelve baseline patient characteristics, along with the transition regimen and randomization stratification factor (prescription opioids/heroin) of prior primary drug use, were evaluated as predictors for successful outpatient induction to XR-NTX in a step-up logistic regression model. Results: Baseline characteristics associated with successful outpatient transition were primary use of prescription opioids (prescription opioids/heroin; odds ratio [OR], 1.68; 95% CI, 1.04–2.69; P = .03), lack of intravenous drug use (no/yes; OR, 1.86; 95% CI, 1.16–2.99; P = .01), low opioid craving visual analog scale rating (OR, 1.83; 95% CI, 1.19–2.81; P = .006), and being employed (yes/no; OR, 1.70; 95% CI, 1.04–2.79; P = .04). Non-predictive characteristics included age, race, sex, addiction severity index, self-reported drug use, COWS, SOWS, and education. Conclusion: Patients with primary prescription opioid use, low opioid craving, and absence of recent intravenous drug use were more likely to successfully complete outpatient detoxification and receive and tolerate a first XR-NTX injection. Heroin users may require additional support during the transition to XR-NTX.

Financial Support: Supported by: Alkermes, Inc., with medical writing support from ApotheCom.

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ID: 470
Ventromedial prefrontal cortex TMS attenuates smoking cue reactivity in cigarette smokers

Tonisha Kearney-Ramos, Medical University of South Carolina

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Treatment

Abstract: AIM: Substantial evidence suggests a role of elevated activity in frontal-striatal circuitry, such as the ventromedial prefrontal cortex (VMPFC) and striatum, in cigarette smoking. Prior research from our lab has demonstrated that continuous theta burst stimulation (cTBS) targeted at VMPFC can attenuate frontal-striatal drug cue reactivity in cocaine and alcohol users. We examined whether a 5-day regimen of VMPFC cTBS would attenuate smoking cue reactivity in cigarette smokers, and whether baseline smoking behavior could predict individuals that would respond best to treatment. METHODS: Thirty-one smokers were recruited into this single-blinded active sham-controlled study, and randomized to receive 5 days of either active (n=15) or sham (n=16) VMPFC cTBS. On day 1, participants underwent a smoking cue reactivity fMRI task. For 5 days, participants received 3600 pulses of real or sham cTBS (110% rMT). The cue reactivity scan was repeated after the final cTBS session. General linear modeling (GLM) analysis of fMRI data was used to characterize changes in smoking cue reactivity following real or sham cTBS, and activity changes were related to baseline behavioral variables. RESULTS: Active cTBS, but not sham, significantly attenuated smoking cue reactivity in the bilateral dorsal striatum and bilateral thalamus. In addition, in the active group, changes in frontal-striatal cue reactivity were positively related to baseline delay discounting for cigarettes and money, as well as relief from smoking. For the sham group, changes were only related to relief from smoking, suggesting specific effects of cTBS on delay discounting but not relief from smoking. CONCLUSION: These data demonstrate that 5 days of VMPFC-targeted cTBS can significantly attenuate smoking cue reactivity in cigarette smokers, and that baseline smoking-related behaviors may be relevant predictors of individuals who might respond to cTBS treatment. These findings provide the basis for continued development of VMPFC-targeted cTBS as a novel non-invasive neuromodulation approach to treating substance use.

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ID: 471
Policing behaviors and HIV/drug-related risk behaviors among people who inject drugs – a literature review

Javier Cepeda, University of California San Diego

Abstract Category: Literature Review

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: Background: Police have been recognized to be a critical structural component of the HIV and drug risk environment among people who inject drugs (PWID). Certain policing practices, such as confiscating syringes, have been shown to be associated with increased HIV risk and drug-related harm. Despite this, associations between policing and these negative public health outcomes have yet to be synthesized across the international literature. Methods: From September – November 2017, we searched PubMed for studies conducted from 1981 – 2017 that included estimates of HIV prevalence, incidence, HIV risk behaviors (syringe sharing, rushed injections, shooting gallery attendance, discontinuation from medically assisted treatment) and policing practices that are adversely related to PWID health (syringe/drug paraphernalia confiscation, beatings, bribery, arrest, not carrying syringes due to fear of arrest). Abstracts were screened and those identified to contain elements of HIV risk and policing behaviors among PWID were selected for further review. We abstracted data on drug related harms and policing practices from eligible studies. Results: Based on approximately 500 abstracts reviewed so far, we identified 7 studies that specifically presented associations between policing and HIV risk behaviors among PWID. Eligible studies originated from both high income (United States, Canada) and middle income settings (Ukraine, Mexico, Malaysia). HIV prevalence among PWID across the sites ranged from 38-55%. Common deleterious policing practices experienced by PWID included syringe confiscation (12-52%), beating/assault (9-64%), rushed injections(56-64%) and avoiding carrying syringes due to police presence (24-69%). Conclusion: Policing practices influencing HIV and drug-related risk were commonly experienced in PWID communities with high HIV burden across diverse settings. Interventions to mitigate these policing practices and facilitate uptake of practices to refer PWID to harm reduction services (syringe exchange programs, medically assisted treatment) are warranted. Background: Police have been recognized to be a critical structural component of the HIV and

Financial Support: NIDA grants K01DA043421, R01DA039073, and R01DA037773

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ID: 472
Effects of gender on affect during acute tobacco abstinence differ between African-American and White smokers

Raina Pang, University of Southern California

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Sex Differences

Abstract: Aims: Prior studies of cigarette smokers have found that women compared to men may experience greater abstinence-induced exacerbations in negative affect. Biological and sociocultural mechanisms across gender and racial groups may interact to alter the experience of tobacco withdrawal. Yet, it remains unknown whether gender differences in affect during tobacco withdrawal may differ by race. The current study investigated the interaction of gender and race on affect during tobacco abstinence. Methods: White (N = 188; 41.5% female) and African American (N = 916; 36.5% female) non-treatment-seeking daily smokers (³10 cigarettes per day) completed two counterbalanced experimental sessions, one following 16 hours of smoking abstinence (abstinent session) and one following ad libitum smoking (non-abstinent session). Participants completed self-report measures of affect at both experimental sessions. Linear regression models were used to measure the association of gender ´ race interaction and abstinence-induced changes (i.e., abstinent scores – non-abstinent scores) in affect controlling for tobacco dependence and non-abstinent affect score. Results: There was a significant interaction between gender and race on several abstinence-induced negative affect states (i.e., anger, anxiety, and confusion; ps
Financial Support: ACS Grant RSG-13-163-01 and NIDA K01- DA040043

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ID: 473
Validating electronic health record (EHR)-based prescription opioid phenotypes for genetic discovery

Christopher Rentsch, VA Connecticut Healthcare System

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Genetics

Abstract: AIM To employ genetic variants of known effect to develop and validate an EHR-based phenotype for prescription opioid exposure. METHODS We included all patients with ≥7 consecutive days of prescribed opioids in the Veterans Aging Cohort Study (VACS) between 1997-2015. All outpatient prescriptions of opioids were included regardless of indication and converted to morphine equivalent daily dose (MEDD). We constructed six metrics characterizing opioid exposure (mean, median, mode, max, and cumulative dose). We also examined exposure trajectories using latent growth mixture models and compared group membership assignment by period of observation included (all, 8, 4, and 1 year of follow-up). We then compared associations with known genetic variants: DRD2 rs1799978 among 685 African-Americans (AA) and CYP2B6 rs3745274 among 247 of European-Americans (EA). RESULTS Among 66,178 prescription opioid-exposed patients, 97% were male, 47% were AA, 42% were of EA, 65% were HIV-/HCV-, 8% were HIV-/HCV+, 22% were HIV+/HCV-, and 6% were HIV+/HCV+. Median time of opioid exposure was 8 years (IQR: 4-12 years). HCV+ experienced greater opioid exposure than HCV-, but exposure did not differ by HIV status. Among AA, mean, median, mode, max, and trajectory phenotypes were associated with rs1799978 when using all observation time. Mean, median, mode, and trajectory remained associated using 8-years observation time. Only trajectory phenotype remained associated using 4-years observation time. Among EA, cumulative and trajectory phenotypes were associated with rs3745274 using all, 8-, and 4-years observation time. CONCLUSION EHR data can be used to identify prescription opioid exposure phenotypes, but requires an adequate observation window of ≥4 years. Trajectory groups of opioid exposure out performed other phenotypes and appear to be the most promising EHR-based phenotype for genetic discovery.

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ID: 474
Frequency of psychiatric disorders and impulsivity among drug-using drivers

Leticia Fara, Center for Drug and Alcohol Research

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Behavior

Abstract: Aim: To evaluate sociodemographic characteristics, impulsivity scores, and psychiatric comorbidities associated with DUI involvement among a sample of Brazilian drug-using drivers Method: This is a secondary data analysis of a cross-sectional study that consecutively recruited 154 drug-using drivers from a male inpatient treatment unit of a public hospital in the city of Porto Alegre, Brazil. Sociodemographic characteristics, drug use patterns and risky behaviors - including DUI, were evaluated with the 6th version of the Addiction Severity Index (ASI-6). Psychiatric comorbidity was assessed through the SCID-I questionnaire. Impulsivity was measured by the Barrat Impulsiveness Scale. Quantitative variables were compared between groups by T-test and categorical variables were investigated using Chi-square test. All analyses were performed on IBM SPSS software version 18.0. Results: Drug-using drivers reporting DUI (n=75) and those not reporting DUIs (n=79) were young adults (36±9), Caucasians (56.5%), not married (60.4%), and with elementary schooling (40.2%). 24.7% of the sample referred alcohol as the drug of preference, whereas 75.3% referred crack-cocaine. The DUI group presented higher prevalence of bipolar disorders (type I and II) than the non-DUI group (8.0% vs 0%, p=0.027); compulsive obsessive disorders were more prevalent among the non-DUI group (10% Vs 0%, p=0.001). Individuals with history of DUI presented higher scores on the Barrat scale (80.4±8 Vs 77.2±10, p=0.050), respectively. Other risky behaviors, such as drug injection, presented no differences between groups. Conclusion: Psychiatric disorders and impulsivity were associated with history of DUI among drug-using drivers in this sample. Research focusing on this aspects as well as other factors that may influence such variables as common personality characteristics and cognitive functions of the cluster of individuals who engage in DUI is of utmost need in order to develop public polices for effective interventions.

Financial Support: Secretaria Nacional de Políticas sobre Drogas

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ID: 475
Increased executive dysfunction and disinhibition in marijuana and MDMA users compared to controls

Kelah Hatcher, University of Wisconsin-Milwaukee

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Club/Designer Drugs

Topic: Behavior

Abstract: Aims: Previous studies have linked Marijuana (MJ) and MDMA use with executive dysfunction and impulsivity (Lisdahl et al., 2014; Hadjiefthyvoulou et al., 2012, VanderVeen et al., 2016). MDMA use is also associated with increased sensation seeking (Linden-Carmichael et al., 2016). We hypothesized that MDMA and MJ users would report poor executive functioning, with MDMA users reporting the greatest executive dysfunction and also the greatest scores on measures of behavioral approach. Methods: Participants ages 18-25 consisted of 22 MDMA users, 28 MJ users, and 38 non-using controls. Exclusions included neurological, medical and psychiatric disorders. Participants reported drug use and completed the Frontal Systems Behavior Scale (FrSBe) (Grace & Malloy, 2001) and Behavior Inhibition/Approach System (BIS/BAS) (Carver & White, 1994). ANCOVAs were used to examine group differences in FrSBe and BIS/BAS scores, controlling for alcohol and other drug use. Results: ANCOVA revealed differences between groups in FrSBe Disinhibition ($F(2, 83)= 4.03$, $p= .02$), FrSBe Executive Dysfunction ($F(2, 83)= 4.6$, $p= .01$), and BIS Total ($F(2, 81)= 4.05$, $p= .02$). Post-hoc tests demonstrated that MDMA users exhibited significantly greater FrSBe Disinhibition scores ($p< .01$), while MJ users showed marginally greater FrSBe Disinhibition scores ($p= .06$) relative to controls. Further, MDMA users reported FrSBe Executive Dysfunction scores that were marginally greater than MJ users ($p= .08$) and significantly greater than controls ($p< .01$). The BIS Total was significantly higher in MJ users relative to MDMA users ($p= .02$) or controls ($p= .02$). No other group differences were found across FrSBe or BIS/BAS scales. Conclusions: MDMA users demonstrated greater disinhibition and executive dysfunction compared to controls. MJ use also significantly predicted greater behavioral inhibition than either MDMA users or controls. Longitudinal studies are needed to characterize the causal relationships between drug use and measures of self-reported executive function and behavioral inhibition.

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ID: 476
Evaluating the epidemiological impact of a police education program among people who inject drugs in Tijuana, Mexico

Javier Cepeda, University of California San Diego

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: Background: Policing practices such as syringe confiscation, arrest, and harassment, have been linked to drug using behaviors that harm the health of people who inject drugs (PWID) in Tijuana, Mexico. To align policing with public health more effectively, we developed a highly innovative structural intervention and trained over 1,800 municipal police officers from February 2015 – May 2016 on recently enacted drug law reforms, public health importance of harm reduction services, and basic HIV and hepatitis C virus epidemiology. We assessed the impact of the police training on deleterious policing exposures in a parallel cohort of PWID in Tijuana. Methods: 771 PWID were recruited by street outreach and followed biannually from 2011 – 2017. Interviewer administered questionnaires were conducted to assess participants' interactions with law enforcement. We controlled for secular time trends by using interrupted time series methods (segmented regression) to determine whether experiencing deleterious interactions with police significantly changed among 6,108 study visits, across two time periods (pre-training versus training). Results: Compared to the pre-training period, the training period was associated with a 2.9 fold lower log odds of police beatings (p=0.031) and a 1.58 lower log odds of recent incarceration of ≥30 days (0.039). No significant changes were detected across the training periods regarding being stopped by police, paying bribes, and being sent to involuntary drug treatment. Overall police referrals to harm reduction services was low (< 3 %) across both periods. Conclusions: Police trainings that integrate public health elements may be effective in reducing some practices known to adversely affect the health PWID. Police departments should ensure that street-level officers have the capacity to mitigate interactions that could harm health of PWID while emphasizing the need to facilitate referral to evidence based drug treatment programs, as mandated by law for repeat low-level drug offenders.

Financial Support: NIDA grants R01DA039073, R01DA037773,K01DA043421

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ID: 477
Gene-environment correlation in affiliating with substance using friends from childhood to young adulthood

Cristina Bares, University of Michigan

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Adolescent

Abstract: Aim: Research often finds similarities in the substance use of individuals and their peers and has shown that peers are an important predictor for the initiation of substance use among adolescents. While some suggest that children and adolescents are susceptible to the substance use behavior of their peers, individuals are likely to select friends and peers that are like themselves. The goal of the present study was to test the degree to which genetic factors affect the likelihood of being exposed to friends who use tobacco, alcohol, or marijuana and whether these change longitudinally. Methods: Data for this study came from male-male twin (monozygotic and dizygotic) pairs interviewed as part of the Virginia Adult Twin Study of Psychiatric and Substance Use Disorders. The outcome was a repeated measure of the number of friends that smoked cigarettes, drank alcohol or smoked marijuana at various ages in childhood, adolescence and young adulthood. Results: The results of three genetically-informed longitudinal models suggested that additive genetic effects have a moderate influence on affiliating with friends in late childhood that smoked cigarettes (16.1%), drank alcohol (13.9%) and used marijuana (14.6%) and the familial environment explained a greater proportion (62.5%, 75.7%, 36.6%, respectively) of the variance. New genetic effects that came online in middle adolescence for each of the three substances (12.9%, 14.6%, and 16.3%) continued to have an influence into adulthood for cigarettes (20.1%, 23.6%) and to a lesser degree for marijuana (9.1%, 10.3%) and alcohol (7.7%, 2.3%). Age-specific influences from the familial environment appeared until young adulthood. Conclusions: We find evidence of a modest gene-environment correlation in affiliating with substance using peers that appear in late childhood with a stable effect into young adulthood. These findings suggest that part of the reason individuals select friends and peers like themselves is due to genetic factors.

Financial Support: NIH K01036681

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ID: 478
Pharmacogenetics of methadone adverse events

Francina Fonseca, Institut de Neuropsiquiatria i Addiccions

Abstract Category: Literature Review

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Genetics

Abstract: Aims: To analyze the influence of genetics on the occurrence of adverse events in methadone maintenance treatment. Material and methods: Systematic review of the literature regarding the influence of genetic variability in the appearance of adverse events in methadone maintenance treatment. Results: Evidence was found for genes coding for opioid receptors (OPRM1 and OPRK1) related with sleep disturbances, withdrawal symptoms and libido changes. Genes coding for Cytochrome P450 enzymes, mainly CYP3A4 and CYP2B6, showed an association with withdrawal syndrome symptoms and sedation. Interestingly, poor metabolizer profile at CYP2B6 was associated to longer QTc intervals than extensive metabolizers, increasing the risk of severe arrhythmia and death. Cardiac adverse events have been related to the (S)-enantiomer and not to (R)-enantiomer. Conclusions: The implementation of regular electrocardiogram monitoring in patients receiving methadone treatment is mandatory. Alternative to (R,S)- methadone in this cases must be provided (i.e. levo-methadone; morphine sustained-release…). Although promising results, majority of the studies did not perform a confirmation evaluation, and some sample sizes are small, being difficult to establish clear recommendations.

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ID: 479
Relative reinforcing effectiveness of the synthetic cathinones MDPV and methylone, administered alone and in combination with caffeine in rats

Brenda Gannon, University of Texas Health Science Center

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Polydrug

Topic: Drug Interactions

Abstract: Synthetic cathinones and caffeine are often found together in abused “bath salts” preparations, and previous research suggests caffeine may enhance the reinforcing effects of synthetic cathinones, including the cocaine-like monoamine uptake inhibitor MDPV and the amphetamine-like monoamine transporter substrate methylone. Aim: To use demand curve analyses to determine if mixtures of MDPV+caffeine, or methylone+caffeine are more valuable to rats than either cathinone alone. Methods: Male Sprague-Dawley rats (n=8) initially trained to intravenously self-administer 0.32 mg/kg/inf methylone were used to generate demand curves for MDPV, methylone, caffeine, and mixtures of MDPV+caffeine or methylone+caffeine by increasing the response requirement across sessions as follows: 3, 10, 18, 32, 56, etc. Behavioral economic analyses were used to determine the relative value of each drug or drug mixture. Synthetic cathinone and caffeine mixtures were evaluated at two ratios (10:1 and 3:1) based on previous studies suggesting that 3:1 (but not 10:1) mixtures enhanced the potency (MDPV+caffeine) and effectiveness (methylone+caffeine) of these drugs to maintain responding under a progressive ratio schedule. Results: Rank order demand for the individual constituents was MDPV > methylone > caffeine. Demand for the 3:1 (but not 10:1) mixture of methylone+caffeine was greater than that for methylone alone, whereas the addition of caffeine to MDPV failed to increase demand beyond that observed for MDPV alone. Conclusions: Together with our previous findings, these studies suggest that when administered in the same preparation, caffeine may enhance the reinforcing effectiveness of methylone; however, the interaction(s) between caffeine and MDPV appear to be limited to changes in potency. Thus, abused "bath salts" preparations containing caffeine and a synthetic cathinone might display higher abuse liability than similar products containing only the synthetic cathinone.

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Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: University of Texas Health Science Center

ID: 480
Comparing prescription opioids, methadone, and heroin rates from the treatment episode data set to the RADARS® System Treatment Center Programs

Heather Olsen, Rocky Mountain Poison & Drug Center

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: AIM The Researched, Abuse, Diversion and Addiction-Related Surveillance (RADARS®) System provides timely product-specific, national surveillance data on prescription opioid abuse. This analysis assesses whether annual abuse trends observed in the RADARS System treatment center programs are similar to trends from the Treatment Episodes Data Set (TEDS). METHODS The RADARS System Opioid Treatment Program (OTP) enrolls individuals entering treatment for opioid use disorders at primarily medication-assisted programs and the Survey of Key Informants' Patients Program (SKIP) enrolls individuals entering treatment at for opioid use disorders primarily private substance abuse programs. TEDS includes records on admissions to substance abuse treatment centers for all substances, including prescription and non-prescription opioids. From 2008 through 2014, OTP and SKIP were compared to data from the TEDS 2014 national report for endorsement of use in the past month of drugs common to all three surveys. Population rates for OTP and SKIP were computed as the total number of endorsements divided by the sum of the population in three-digit ZIP codes where at least one respondent resided. A Pearson's correlation coefficient was calculated to test the relationship between RADARS System programs and TEDS population rates over time for prescription opioids excluding methadone, methadone, and heroin abuse. RESULTS In OTP, prescription opioids (r=0.82), methadone (r=0.88), and heroin (r=0.68) were strongly correlated with TEDS data. In SKIP, prescription opioids (r=.80) and methadone (r=0.85) were strongly correlated with TEDS data and heroin showed a negative correlation (r=-0.40). In TEDS 66% of individuals entering treatment for opioid abuse reported heroin as their primary drug, whereas, 54% in OTP and 31% in SKIP reported heroin as their primary drug. CONCLUSION Trends in both RADARS System programs appear to track well with national data from TEDS for both prescription opioids and methadone.

Financial Support: The RADARS System is supported by subscriptions from pharmaceutical manufacturers, government and non-government agencies for surveillance, research and reporting services. RADARS System is the property of Denver Health and Hospital Authority, a political subdivision of the State of Colorado. Denver Health retains exclusive ownership of all data, databases and systems. Subscribers do not participate in data collection nor do they have access to the raw data.

First Name: Heather

Last Name: Olsen

Degrees: MA MD Ph.D etc:: MPH

Company Affiliation: Rocky Mountain Poison & Drug Center

ID: 481
Professional students' knowledge attitudes and perceptions of the medical use of cannabis

Lynneice Bowen, Medical University of South Carolina

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Policy

Abstract: AIM Limited data has been gathered on the knowledge, attitudes and perceptions of medical marijuana among health professions students (MD, DMD, PharmD) and the learning gaps these trainees experience. We hypothesized that professional students' knowledge, attitudes and perceptions related to the medical use of cannabis would differ by discipline. METHODS A 76 question survey was designed to collect data related to knowledge of approved indications, adverse effects, and respondents' confidence in answering patient questions related to medical marijuana/cannabis. Demographic data including personal and peer experience with medicinal and recreational marijuana use was also collected. The anonymous survey was distributed to approximately 1500 students pursuing MD, PharmD, and DMD degrees via email link. Study data were collected and managed using REDCap (Research Electronic Data Capture) a secure, web-based application designed to support data capture for research studies. RESULTS 309 full and partial responses were collected. There were no statistical differences in the responses of trainees based on degree course (MD, DMD, PharmD) regarding their experience of formal education related to the medical use of marijuana ($p=0.7$) as measured by Fishers exact test. 80% reported marijuana to be safer than tobacco and alcohol. 50% reported it is less harmful that prescription medications. There was no statistical difference between groups for these beliefs. The groups were also equally concerned about diversion of medical cannabis to the recreational market. However medical and dental student status was associated with greater confidence in knowledge about efficacy of medical marijuana ($p=0.01$) and associated with having friends who use recreational marijuana ($p=0.04$) as compared to pharmacy students. CONCLUSION Physicians, dentists and pharmacists should be at the forefront of shaping patient understanding and disseminating health information. The knowledge gaps reported by these students represent an opportunity for educators.

Financial Support: NIH K24 DA038240 NIH R25 DA020537

First Name: Lynneice

Last Name: Bowen

Degrees: MA MD Ph.D etc:: MD, M.Ed

Company Affiliation: Medical University of South Carolina

ID: 482
Factors associated with injection initiation during adolescence

Sara Warfield, West Virginia University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: Aim(s): Understanding factors that influence injection drug use during adolescence is important for designing preventive interventions. We examined factors associated with injection initiation as a minor (18 years old and injected in the past 30 days. An interviewer-administered survey collected information on sociodemographics, drug use, and injection initiation. We used multivariable logistic regression to identify factors independently associated with initiating injection as a minor. Results: Among 494 PWID in the study, 166 (34%) initiated injection as a minor. These participants were significantly more likely to be male (70% vs. 55%, p=0.01), Hispanic (49% vs. 40%, p=0.04),did not complete high school or GED (63% vs. 40%, p=0.01), and report heroin as the first drug injected (65% vs. 52%, p=0.03). They were also more likely to have an immediate family member who ever injected drugs (44% vs. 30%, p=0.02) and have injected with a family member the first time they injected (33% vs. 18%, p= 55 years (AOR=2.77; 95% CI: 1.43-5.36), being male (AOR=2.05; 95% CI: 1.32-3.18), and injecting with a family member at first injection (AOR=2.01; 95% CI: 1.27-3.19) were independently associated with initiating injection as a minor. Conclusions: Our study suggests injection initiation during youth is more common among males and that having a family member who injects drugs is an important factor in youth transitions to injection. In our sample, youth injection was more common among older study participants. Interventions that promote drug treatment among PWID with minor family members could have important downstream impacts on injection drug use among youth.

Financial Support: National Institute on Drug Abuse grant #R01DA035098

First Name: Sara

Last Name: Warfield

Degrees: MA MD Ph.D etc:: MPH

Company Affiliation: West Virginia University

ID: 483
The utility of the pain medication questionnaire to predict aberrant urine drug tests: Results from a prospective cohort study

Ben Morasco, VA Portland Health Care System

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Other

Abstract: Aim: Identifying patients at risk for prescription opioid misuse is a clinical priority. Standardized measures of risk for misuse have been developed, but prior research has been limited by a reliance on cross-sectional data. In the current study, we examine the utility of the Pain Medication Questionnaire (PMQ), a standardized measure of risk for prescription opioid misuse, to prospectively predict aberrant urine drug test (UDT) results over 24 months of follow-up. Methods: Participants (n=466) who were prescribed long-term opioid therapy (LTOT) completed a battery of self-report measures assessing pain, function, and quality of life; this also included the PMQ. Medical record data were abstracted for 24 months after the baseline assessment to collect data on UDT administrations and results. Results: Among participants, 12.9% had a UDT positive for a non-prescribed or illicit substance, 18.9% had an aberrant negative UDT result, 3.7% had aberrant positive and negative UDT results, and 64.6% had an expected UDT result. Average PMQ score at baseline did not significantly differ based on participants' type of UDT results over 24 months of follow-up. In multivariable regression analyses, PMQ score was not associated with UDT result. Variables significantly associated with an aberrant positive UDT were male gender (OR=2.17, 95% CI=1.18-4.00) and hazardous alcohol use (OR=2.32, 95% CI=1.07-5.03); those associated with an aberrant negative UDT were lower prescription opioid dose (OR=0.98, 95% CI=0.97-0.99) and hazardous alcohol use (OR=2.47, 95% CI=1.33-4.61); and the only variable associated with positive and negative UDT results was male gender (OR=3.57, 95% CI=1.09-12.50). Conclusion: There are a lack of high quality studies assessing the link between LTOT and aberrant UDT results. Results from this study indicate that total PMQ score was not predictive of aberrant positive or negative UDT results. More work is needed to understand patient factors that accurately predict prescription opioid misuse.

Financial Support: This research was supported in part by grant 034083 from the National Institute on Drug Abuse.

First Name: Ben

Last Name: Morasco

Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: VA Portland Health Care System

ID: 484
Lifetime alcohol consumption conditionally relates to neurocognitive performance based on methamphetamine dependence

Rowan Saloner, SDSU/UC San Diego Joint Doctoral Program in Clinical Psychology

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Other

Abstract: Aim: Methamphetamine (MA) abuse is associated with neurotoxicity and adverse neurocognitive outcomes. Although combined alcohol and MA misuse is common, how alcohol consumption relates to neuropsychological deficits among MA users remains unclear. We hyp-othesized that greater reported alcohol consumption differentially contributes to worse neurocognitive functioning, with larger effects among MA-dependent individuals compared to MA-nonusing persons. Methods: Eighty-seven MA-dependent and 117 demographically similar MA-nonusing adults underwent neuropsychological and substance use assessments. MA-dependent individuals met lifetime DSM-IV criteria for MA-dependence, with use within the last 18 months. A Wilcoxon Rank Sum test and two-sample t-test examined MA group differences in alcohol density and global cognition based on demographically-corrected T-scores (M=50; SD=10), respectively. Multivariable linear regressions examined the interaction between MA status and life-time average drinks consumed per drinking day (alcohol density) on global cognition, controlling for depressive symptoms and premorbid verbal IQ as estimated by a standard test of oral reading. Results: Compared to MA-nonusing persons, MA-dependent individuals exhibited worse global cognition [mean (SD) T-scores= 47.5 (5.35) vs. 49.7 (5.31), t = 2.98, p
Financial Support: This research was supported by NIH grant P50-DA026306 (IG). RS is supported by NIH/NIAAA grant T32AA013525.

First Name: Rowan

Last Name: Saloner

Degrees: MA MD Ph.D etc:: BS

Company Affiliation: SDSU/UC San Diego Joint Doctoral Program in Clinical Psychology

ID: 485
Sensation-seeking personality trait and its association to drug seeking behavior in adolescents: A systematic review of the literature

Thiago Fidalgo, Universidade Federal de Sao Paulo

Abstract Category: Literature Review

Abstract Detail: Human

Drug Category: Polydrug

Topic: Adolescent

Abstract: AIM: Sensation-seeking is a personality trait that seeks novel, complex, and intense experiences. Sensation-seeking has been related to both good (i.e., participation in drama clubs, science fairs), as well as bad outcomes (i.e. drug use) in adolescence. Thus, the aims of this systematic review were to investigate: 1) the sociodemographic characteristics associated with sensation-seeking among adolescents; and 2) the relationship between sensation-seeking and the first onset of risky behavior. METHODS: A systematic review was performed on publications available on PubMed's and Scopus' database between 1980 and May 2017. In total, 508 articles were identified using the set criteria. Of these, 416 were excluded after review for duplicate titles and non-relevance. RESULTS: A majority of the studies (n=56) used a derived version of Zuckerman's Sensation Seeking Scale to measure the presence of sensation-seeking traits in adolescents. In most studies (n=68), higher sensation-seeking scores had positive associations with risk-taking behaviors for adolescents or were a predictor of risk-taking behavior. Five longitudinal design studies measured sensation-seeking traits over time, and found that sensation-seeking scores usually increased throughout adolescence. CONCLUSION: These findings suggest the need to increase primary prevention efforts targeted towards adolescents that have higher sensation seeking scores to prevent the onset of risky behavior and gear them towards pleasurable, healthier activities.

Financial Support: None

First Name: Thiago

Last Name: Fidalgo

Degrees: MA MD Ph.D etc:: MD, PhD

Company Affiliation: Universidade Federal de Sao Paulo

ID: 486
Anxiety sensitivity in relation to smoking variables and other substance use in African-American smokers

Casey Guillot, University of North Texas

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Dependence

Abstract: Aims: Health behaviors can be influenced by relationship status, with single individuals often displaying different cigarette smoking behaviors than married individuals. This could be for many reasons, such as one partner attempting to convince the other partner to quit smoking or one partner being influenced to match the smoking behavior of the other partner. Some prior research also has indicated that other factors may influence if being in a relationship is associated with differences in smoking behavior. One important factor to consider in regard to smoking is anxiety sensitivity (AS), or fear of anxiety symptoms, which has been tied to smoking to alleviate negative affect and difficulty with quitting smoking. The present study examined if the association of relationship status with cigarette smoking heaviness and dependence is moderated by AS. Methods: In this cross-sectional design, 507 treatment-seeking smokers (48.1% female; M age 36.8 years; 8+ cigarettes per day) completed self-report measures of demographic characteristics, AS, smoking history, and tobacco dependence severity. Results: Controlling for years of regular smoking, AS was associated with overall severity of cigarette dependence ($\beta = .17$, $p < .0001$) and dependence related to morning ($\beta = .10$, $p = .018$) and daytime smoking ($\beta = .19$, $p < .0001$), whereas relationship status (i.e., married or in a live-in relationship vs. not) was not significantly associated with any smoking variables. Moderated regression analyses revealed interactions of relationship status and AS on cigarettes per day ($\beta = .12$, $p = .005$) and daytime smoking dependence ($\beta = .08$, $p = .043$), such that relationship status was positively associated with smoking heaviness and dependence in high-AS smokers to a greater degree relative to low-AS smokers. Conclusions: Current findings suggest that living with a partner may be associated with cigarette smoking heaviness and dependence particularly in smokers high in AS.

Financial Support: NIMH Grant R01-MH076629

First Name: Casey

Last Name: Guillot

Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: University of North Texas

Contact Title: Assistant Professor

ID: 487
Evaluation of mifepristone effects on alcohol seeking and self-administration

Elise Weerts, Johns Hopkins University School of Medicine

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Alcohol

Topic: Treatment

Abstract: AIM: Mifepristone (MIF) is a type II glucocorticoid receptor (GRII) antagonist, but also binds with high affinity at progesterone receptors. Both stress and alcohol consumption activate the hypothalamic-pituitary-adrenal (HPA) axis resulting in release of glucocorticoids. Chronic heavy alcohol intake and repeated stress can injure limbic and HPA stress pathways, which short-term MIF treatment may repair. There is high interest in the potential of MIF and other GR modulators to reduce heavy drinking, and promote abstinence. The aim of the study was to determine if sub-chronic treatment with MIF would decrease alcohol seeking and self-administration in a baboon chronic drinking model. METHODS: Subjects were five baboons (Papio anubis) with a multi-year history of heavy alcohol consumption. Baboons self-administered alcohol under a chained schedule of reinforcement (CSR) during daily sessions, 7 days a week. The CSR consisted of 3 separate "linked" components, each associated with distinct stimuli (cues) and different behavioral contingencies (schedule requirements) leading to the opportunity to self-administer 4% w/v alcohol in water. Under baseline conditions, baboons self-administered an average of 1 g/kg/day of alcohol in the 2-hr self-administration period. Each dose of mifepristone (0, 10, 20 and 30 mg/kg) was administered orally 30 minutes before each CSR session for 7 days. Alcohol self-administration was reestablished, and after a washout period (at least 3 weeks) the next dosing period was initiated. RESULTS: Sub-chronic administration of mifepristone did not alter alcohol seeking or self-administration under the CSR, when compared to the vehicle condition. The 30 mg/kg dose reduced food intake in two baboons. CONCLUSION: These data do not demonstrate efficacy of MIF when administered during ongoing alcohol heavy drinking in this baboon model. Additional studies under other contexts (e.g., abstinence dosing) and greater severity of heavy drinking are needed to assess the utility of MIF to reduce heavy drinking in humans.

Financial Support: NIAAA R01AA015971. Mifepristone used in this study was provided as a gift from Corcept Therapeutics.

First Name: Elise

Last Name: Weerts

Degrees: MA MD Ph.D etc:: Ph.D

Company Affiliation: Johns Hopkins University School of Medicine

Contact Title: Assistant Professor

ID: 488
Enhanced acquisition of cocaine self-administration in male and female rats following amphetamine exposure during adolescence

Ryan Lacy, Franklin and Marshall College

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Stimulants

Topic: Adolescent

Abstract: AIM: Diagnosis and treatment of attention-deficit/hyperactivity disorder (ADHD) has risen drastically over the past 20 years in the United States and abroad. Amphetamine-based prescription stimulants are the most prescribed treatment for ADHD and the diversion of these drugs has also increased. Reports indicate 61% of individuals with an ADHD prescription have sold or shared their medication. Exposure to prescription stimulants, especially for those without an ADHD diagnosis, may increase susceptibility to drugs of abuse. The present study aimed to model ADHD medication misuse during adolescence in male and female rats. The primary dependent measure was the acquisition of intravenous cocaine self-administration. METHODS: Male and female, Long-Evans rats were exposed to d-amphetamine (0.7 mg/kg, i.p.) or saline in adolescence (35-41 days old) during which locomotor activity was measured. At approximately 75 days old, animals were implanted with jugular catheters. All animals then entered a 15-day acquisition procedure with no prior operant training. Finally, following acquisition all animals responded on a progressive-ratio (PR) schedule to obtain 0, 0.1, 0.3, and 1.0 mg/kg/infusion cocaine. RESULTS: Animals exposed to amphetamine acquired cocaine self-administration faster than saline-exposed controls when the acquisition criterion was operationally defined as 2 consecutive days with 12 infusions or greater. Discrete-time hazard modeling also found amphetamine exposure to increase the likelihood of acquiring cocaine self-administration. There were no differences detected during PR testing. CONCLUSION: This is the first study to model ADHD medication misuse in male and female animals. Importantly, the prevalence of diagnosis of ADHD is now greater in woman than men. These data suggest that individuals with histories of prescription stimulant misuse, regardless of sex, may be at increased risk to use cocaine and other drugs of abuse.

Financial Support: Professional Development Funds from Franklin & Marshall College (RTL)
Leser Grant from the Committee on Grants at Franklin & Marshall College (HKS)

First Name: Ryan

Last Name: Lacy

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Franklin and Marshall College

ID: 489
Examining the sensitivity of purchase tasks to individual differences in risk among substance users: A literature review

Ivori Zvorsky, Vermont Center on Behavior and Health

Abstract Category: Literature Review

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Other

Abstract: Aims: Purchase Tasks (PTs) are behavioral economic instruments that model the reinforcing value of a commodity under escalating price (i.e., demand). Demand is analyzed using five indices: Intensity (consumption at zero price), Omax (maximum expenditure), Pmax (price with maximum response output), Breakpoint (last price with any demand), and Elasticity (overall sensitivity to price). The aim of this review is to determine if PTs are sensitive to individual differences in risk among substance using populations, and examine which indices are most sensitive. We examined the ability of PTs to detect physiological and affective risk factors for problematic use, distinguish those with problematic use, and identify those most likely to respond to clinical or regulatory interventions. Methods: Reports were identified using the search term "purchase task" via PubMed. For inclusion, reports had to be in English, appear in a peer-reviewed journal through July 2017, and examine relationships between PTs and individual differences in risk as outlined above. Three authors reviewed search results to determine study inclusion. Results: 37 reports met inclusion criteria. Intensity was the most sensitive index, with 90% of articles reporting significant associations with the dependent measures of interest. Omax was the second most sensitive index, with significant associations reported in 78% of articles. Elasticity was the third most sensitive index, with significant associations reported in 67% of articles. Breakpoint and Pmax yielded significant associations in 33% and 25% of articles, respectively. Conclusions: These preliminary results demonstrate that PTs are sensitive to individual differences in risk among substance using populations and that volumetric measures of demand (i.e. Intensity and Omax) and overall sensitivity to price (i.e. Elasticity) have the most predictive utility in identifying these individual differences. Overall, PTs can provide scientifically and clinically useful information regarding individual difference in demand for substances and the likelihood of socially important outcomes.

Financial Support: This research was supported by Research Awards R01DA014028 and R01HD075669, Institutional Training Grant T32DA007242, and Centers of Biomedical Research Excellence Center Award P20GM103644.

First Name: Ivori

Last Name: Zvorsky

Company Affiliation: Vermont Center on Behavior and Health

ID: 490
Use of automated data to study trends in heroin and pharmaceutical opioid overdoses in a large health system: 2006-2015

Jason Glanz, Kaiser Permanente Colorado

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: Aim: Data from automated health system data such as electronic health records (EHR) and claims have been used to examine associations between opioid prescribing and pharmaceutical opioid overdose (POD). However, to date, these data have not been used extensively to study the risk of heroin overdose (HOD). We sought to examine trends in HOD and POD rates using health system data from Kaiser Permanente Colorado (KPCO) over a ten-year period. Methods: We conducted a population-based study within KPCO from 2006-15. EHR and claims data were used to identify non-fatal overdoses in emergency department and inpatient settings. Fatal overdoses were identified using cause-of-death codes generated through linkage with state vital statistics. Annual overdose rates were calculated using number of mid-year enrollees as population denominators. We calculated the case-fatality rate and incidence rate ratios (IRR) comparing 2015 to 2006; time trends were analyzed with linear regression and Cochran-Armitage trend tests. Results: A total of 1,969 overdoses were identified; 311 (15.8%) and 1,658 (84.2%) were HODs and PODs with a case-fatality rate 17.1% and 8.8%, respectively. Between 2006-2015, the rate of HODs increased from 2.52 to 9.87/100,000 (IRR 3.91, 95% CI 2.16, 7.57). For PODs, between 2006-2011, the rate increased from 27.14 to 37.75/100,000 and then decreased to 27.84/100,000 in 2015 (IRR 1.02, 95% CI 0.82, 1.29). Trend tests for both overdose rates were statistically significant. The median age at HOD decreased from 31.5 to 24.0, whereas the median age at POD increased from 47.0 to 49.0 ($p< 0.05$). Conclusion: Large integrated health systems provide a rich source of data to examine the epidemiology of overdose in denominated populations. Although POD rates stabilized over time, HOD rates rose exponentially over the time period. Concerningly, the case-fatality rate was 2-fold higher for HOD than POD, and HOD victims were significantly younger than POD victims.

Financial Support: This work is supported by a grant (R56 1R56DA044302) through the National Institute of Drug Abuse, National Institutes of Health.

First Name: Jason

Last Name: Glanz

Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: Kaiser Permanente Colorado

ID: 491
Hub and spoke model to improve pharmacotherapy use for opioid addiction – early implementation

Sharon Reif, Brandeis University, Heller School for Social Policy and Management

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Abstract Category: Program Descriptions

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: AIM. Pharmacotherapy to address opioid use disorders (OUDs) is an evidence-based practice although it is clearly underutilized. States have recently received federal funds to increase efforts to address the opioid crisis. Washington State is implementing a "Hub & Spoke" integrated care model to expand access to pharmacotherapy services (medication-assisted treatment) and reduce unmet need for people with OUDs. We report here on early implementation efforts. METHODS. Data are obtained from the state's Division of Behavioral Health and Recovery as well as directors of the hub and spoke initiative, and staff at those programs. Data sources include document review, interviews, and surveys of the hubs and spokes. RESULTS. By design, Washington focused on adults (18+) with OUDs. Six hub-spoke networks (48 agencies) were selected, all in the western half of the state. All networks had several pharmacotherapy providers, but each also incorporated a unique set of partners. These included (depending on the network) mental health and primary care providers, opioid treatment programs, emergency department induction sites, and telehealth substance use treatment. Referral partners in at least one network included needle exchange programs, homeless service agencies, jails and drug courts, a police department, a managed care organization, and a tribal medical/behavioral health authority. Ongoing data collection will focus on how hubs and spokes interact, where induction and maintenance of pharmacotherapy occurs, and how people with OUDs move through each network. CONCLUSION. Washington's six networks are fairly unique in composition. An in-depth understanding of the role of prescribers and referrals in and across these networks will enable us to identify the essential elements of the hub and spoke model. Ongoing research will use these findings to examine the effectiveness of this model to improve treatment of people with OUDs.

Financial Support: National Institute on Drug Abuse Grant R21 DA 045851

First Name: Sharon

Last Name: Reif

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Brandeis University, Heller School for Social Policy and Management

ID: 492
The effects of cocaine-dependence and aging on decision making performance and impulsivity

Sade Johns, Virginia Commonwealth University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Stimulants

Topic: Dependence

Abstract: AIM: According to the National Survey on Drug Use and Health, individuals aged 50 and older with a substance use disorder (SUD) is projected to increase from 2.8 million in 2002-2015 to 5.7 million by 2020. Long-term use of cocaine has been shown to cause cognitive impairments in decision-making performance (Spronk et al, 2013) and may lead these impairments to be more pronounced due to age-related decline. We aim to compare decision-making performance and impulsivity between younger and older cocaine-dependent users; we measured trait, Barratt Impulsiveness scale version 11 (BIS 11) and state, immediate memory task (IMT) measures of impulsivity. We hypothesized that 1) We would see no age-related changes on the BIS-11 and 2) Older cocaine-dependent users would have greater commission errors on the IMT due to age-related changes. METHODS: A total of 53 participants took part in this study: 21 older cocaine-dependent users and 32 younger cocaine-dependent users. Participants were divided into older (53.62 + 2.62) and younger (mean age 41.94 +7.37) groups based on a median split for age. All participants completed the BIS-11 and the IMT. RESULTS: Independent samples T-tests were performed. There were no significant differences between older (M=64.10, SD=11.27) and younger (M=64.88, SD=10.38) cocaine-dependent users on the BIS 11 t(51)=.25,p=.80,NS. There was a significant difference between older (M=38.34, SD=14.35) and younger (M=28.10, SD=14.44) cocaine-dependent users in commission errors on the IMT t(51)=-2.53, p=.014. CONCLUSION: Older cocaine-dependent users demonstrated impairment on the IMT as well as scoring higher on the motor impulsiveness factor of the BIS-11. This data suggests that developmental aging along with cocaine-dependence may increase cognitive decline. Results of this study will be discussed in light of other potential sources of cognitive decline in this patient population.

Financial Support: This work is The National Institute of Drug Abuse through grant no. U54DA03899.

First Name: Sade

Last Name: Johns

Degrees: MA MD Ph.D etc:: MD

Company Affiliation: Virginia Commonwealth University

ID: 493
A new method with improved sensitivity of the detection of marijuana metabolite in human umbilical cord tissue using 2-D GC/MSMS

Joseph Jones, United States Drug Testing Laboratories

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Perinatal

Abstract: Aim: Umbilical cord (UC) is rapidly replacing meconium as the gold standard because it is truly a universal specimen, uses a simple single-step collection, and is available immediately following birth. The aim of this study was to develop and fully validate an improved highly sensitive method for the identification and quantification of 11-nor-Δ9-carboxy-tetrahydrocannabinol (THCA) in human UC that can be employed for detection of in utero marijuana exposure. Methods: The method was developed and validated using solid phase extraction followed by 2-dimensional gas chromatography tandem mass spectrometer (2D GC/MSMS) following the recommendations of the Scientific Working Group on Forensic Toxicology (SWGTOX). The method was further challenged with 46 authentic human umbilical cord specimens previously analyzed for cannabinoids using a fully validated immunoassay method (Enzyme Linked Immunosorbant Assay; ELISA). Results: The determined limit of detection was 10 pg/g and the linear range extended from 20 pg/g up to 500 pg/g. The within-run and between-run bias ranged from -0.9 to 16.1 and 1.0 to 18.4 percent, respectively. In the authentic specimen challenge involving 46 specimens, all 23 ELISA positive specimens tested positive using the new method while one of the ELISA negative samples contained detectable THCA (sensitivity = 100% ; specificity = 95.7%). Conclusion: To the best of our knowledge, this is the most sensitive, fully validated assay to date for the detection of THCA in human UC. This assay will prove useful for detection of in utero exposure to marijuana for not only epidemiological surveys but for routine monitoring of mothers at high risk of marijuana use.

Financial Support: This study was funded internally by United States Drug Testing Laboratories (USDTL). USDTL is a national commercial reference laboratory in the business of forensic newborn toxicology.

First Name: Joseph

Last Name: Jones

Degrees: MA MD Ph.D etc:: BS, MS, PhD

Company Affiliation: United States Drug Testing Laboratories

ID: 494
Developing hallucinogenic drugs as therapeutic agents: Regulatory framework

Silvia Calderon, U.S. Food and Drug Administration

Abstract Category: Theoretical/Commentary

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Other

Abstract: Aims: To provide an overview of the regulatory framework that applies to the development of hallucinogenic drugs. Methods: In recent years, there is a renewed interest in the potential therapeutic benefits of various hallucinogens with known abuse potential. In the United States (USA), the regulatory framework that applies to the development of hallucinogenic drugs is the same as for all other drugs. Results: The Federal Food, Drug and Cosmetic Act (FFD&CA) and the Controlled Substances Act (CSA) provide the regulatory framework for the development and marketing of new drugs with abuse potential. Under the FFD&CA the standard of approval of a drug is safety and efficacy under the labeled conditions; and the safety of a drug is assessed by determining whether its benefits outweigh its risks. In this context, the abuse potential of a drug is one of the safety factors evaluated. It requires a comprehensive analysis of all abuse-related data generated throughout all phases of development. This assessment is conducted for all new drugs with central nervous system (CNS) activity, that are chemically or pharmacologically similar to other drugs with known abuse potential, or drugs that produce psychoactive effects predictive of abuse, such as euphoria and hallucinations. Characterization of the abuse potential of a drug informs labeling, risk management strategies, and controls. Under the CSA drugs are controlled in one of five schedules, based upon their abuse potential, accepted medical use for treatment and dependence liability. Most hallucinogens are already controlled in the most restrictive schedule of the CSA, Schedule I. Tight controls are imposed on their manufacture, distribution, storage, importation/exportation, and a registration issued by the DEA is needed to conduct research with these substances. Conclusions: Some hallucinogens show promise in medical treatment; however, additional research is needed to determine their efficacy and overall safety.

Financial Support: N/A

First Name: Silvia

Last Name: Calderon

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: U.S. Food and Drug Administration

ID: 495
Altered resting-state functional connectivity in adolescent female nonhuman primates during acute and chronic exposure to the long-acting cannabinoid CB1 receptor agonist, AM2389

Stephen Kohut, McLean Hospital, Harvard Medical School

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Marijuana/Cannabinoids

Topic: Imaging

Abstract: AIM: Epidemiological data suggest that cannabinoid use among adolescents has increased recently, with a significant number reporting daily or near-daily use. Laboratory-based human studies indicate that such long-term cannabinoid use during developmental periods may have enduring effects into adulthood. Moreover, the potency and availability of cannabis and synthetic cannabinoids has increased, heightening concerns regarding the effects of long-term exposure. There is a strong need for rigorous preclinical studies to identify cannabinoid-related alterations in brain and behavior during adolescence. Findings from these studies could facilitate the development of therapeutic strategies to mitigate potentially adverse effects of prolonged exposure. The present study examined the functional consequences of acute and chronic exposure to a high potency, long-acting CB1 receptor full agonist, AM2389, using neuroimaging and behavioral endpoints in nonhuman primates. METHODS: Experimentally naïve, female rhesus macaques (N=4), approximately 3.5-4 years old at the onset of the study, served as subjects. Monkeys received daily intramuscular injections of 0.01 mg/kg AM2389, and scan sessions occurred 3hr after drug administration. Resting-state functional connectivity (RSFC) was determined before, on the first day, and after ~30 days of 0.01 mg/kg AM2389. Group Independent Component Analysis (ICA) with cluster-mass based dual regression was used to determine differences in RSFC between treatment conditions. RESULTS: The group ICA identified several networks underlying multiple levels of sensory, motor, and cognitive processing. Acute AM2389 exposure altered RSFC primarily in regions involved in sensory processing (somatosensory cortex and thalamus) and motoric behavior (precentral gyrus, putamen, globus pallidus) networks. RSFC during chronic treatment was altered in these same networks but also included those related to cognition and/or motivation and emotion regulation (temporal lobe, angular gyrus, amygdala, ventral tegmental area, anterior cingulate, superior frontal gyrus). CONCLUSION: These data suggest that cannabinoid exposure alters RSFC in a brain region- and exposure-dependent manner, with effects that are more

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ID: 496
N-acetylcysteine-mediated restoration of GLT-1 and inhibition of neuroinflammation in the nucleus accumbens core attenuates cue-induced nicotine seeking

Mark Namba, Arizona State University

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Nicotine/Tobacco

Topic: Neurobiology

Abstract: AIM Nicotine addiction is a significant public health liability that remains the leading cause of preventable death in the United States. Nicotine self-administration is associated with decreased expression of the glial glutamate transporter (GLT-1) and the cystine-glutamate exchange protein xCT. N-acetylcysteine (NAC), an antioxidant and glutamatergic agent, has been demonstrated to restore these proteins associated with increased relapse vulnerability. However, the specific molecular mechanisms driving its inhibitory effects on cue-induced nicotine reinstatement are unknown. METHODS In the present study, rats were trained to self-administer nicotine (0.02 mg/kg/infusion) and underwent extinction training, where they received chronic NAC (100 mg/kg/day, i.p. for 5 days) and an antisense vivo-morpholino (30 pmol/injection/day for 3 days) designed to selectively suppress GLT-1 expression in the nucleus accumbens core (NAcore). Following extinction, rats were tested for cue-induced nicotine reinstatement and GLT-1 protein expression was assessed in the NAcore. RESULTS Chronic NAC treatment significantly increased GLT-1 levels and attenuated cue-induced nicotine seeking relative to saline controls. As well, GLT-1 antisense vivo morpholino (GLT-1 AS) significantly suppressed GLT-1 levels in the NAcore, which blocked the attenuating effect of NAC on reinstated nicotine seeking. GLT-1 AS was also associated with an increase in CD40 expression, possibly indicating activated microglia or peripheral macrophages. Interestingly, chronic NAC treatment was also associated with a decrease in tumor necrosis factor alpha (TNFα) expression relative to saline controls, indicating a possible anti-inflammatory mechanism of NAC that may be relevant to reducing nicotine relapse vulnerability. CONCLUSION These results suggest that while GLT-1 may be a conserved neurobiological substrate underlying relapse across drugs of abuse, there are other potential mechanisms underlying NAC's therapeutic efficacy in the treatment of nicotine addiction and relapse.

Financial Support: NIH Grant DA036569

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ID: 497
Considerations when assessing delay discounting among individuals with SUD: comparison of AUC, log k, and AUClog

Jin-Ho Yoon, University of Texas Health Science Center

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Stimulants

Topic: Behavior

Abstract: Aim: Recent studies have highlighted that different measures of delay discounting may produce disparate results. The purpose of the current study was the compare two common and one relatively new model of discounting log k, area under the curve (AUC), and AUClog among a group of relatively high discounters, individuals with either cocaine or methamphetamine use disorder. Methods: Participants consisted of non-treatment seeking individuals with either cocaine or methamphetamine use disorder. Study 1 compared log k and corresponding AUC values and also assess the individual contribution at different delay intervals to the final log k and AUC values. Study 2 compared discounting of money vs. methamphetamine using log k, AUC, and AUClog. Results: For both studies, AUC values were highly skewed, contradicting a common assumption that AUC values are normally distributed. In Study 1, the relationship between log k and AUC was non-linear, with AUC being less sensitive to changes in discounting at greater discounting values. This appeared to be the results of disproportionate influence of longer vs. shorter delay values to the total AUC value. In Study 2, discounting for methamphetamine was significantly greater than discounting for money when using log k and AUClog, but not AUC. These results mirror recent reports in the literature. Conclusion: Overall, our results strongly suggest that AUC should be implemented with caution when assessed delay discounting among individuals with SUDs.

Financial Support: This study was supported by grant funding provided by the National Institute on Drug Abuse to Drs. De La Garza (DA028387) and Newton (DA023468). This work was conducted and supported by resources at the Michael E. DeBakey VA Medical Center.

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ID: 498
Health needs and health service utilization among reincarcerated drug-using women in rural Appalachia

Megan Dickson, University of Kentucky

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Other

Abstract: AIM: Research has documented the prevalence of health-related problems among women offenders, with public health officials highlighting the importance of health care in successful community reentry. However, limited research has examined health problems and health service utilization as correlates of recidivism among rural women. Thus, the current study aims to 1) profile health problems, health service utilization, and barriers to health care by reincarceration status, and 2) identify health-related correlates of reincarceration among rural, drug-using women. METHODS: As part of a larger study, 400 rural, drug-using women were recruited from three Appalachian jails. Participants were randomly selected, screened, and interviewed face-to-face. Analyses focused on participants who had completed the baseline and the 12-month follow-up interview following release to the community (N=345). Bivariate analyses and a multivariate logistic model were used to examine demographics, health, health service utilization, and barriers to health care as correlates of reincarceration. RESULTS: More than one-third (35.4%) of participants were reincarcerated in the 6 months preceding the 12-month follow-up interview. Reincarcerated women were significantly less likely to be employed and more likely to have used drugs in the past 6 months. Bivariate analyses indicated reincarcerated women had more health problems, were more likely to report lack of health insurance as a barrier to health care, and more likely to have unpaid medical bills. However, they were less likely to have a usual source of health care and take medication for a health problem. Logistic regression analysis suggested that although health problems increased the likelihood of reincarceration, having health insurance decreased the likelihood. CONCLUSION: Results suggest the importance of health care in successful community reentry for rural women. This signals important implications for rural, drug-using women facing health problems and is particularly critical in rural Appalachia, a region ravaged by the opioid epidemic and where health services are limited.

Financial Support: This research is supported by NIDA grants R01DA033866 and K02DA035116.

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ID: 499
Role of delta opioid receptors in modulating reward-related behaviors

Emily Jutkiewicz, University of Michigan

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Opiates/Opioids

Topic: Behavior

Abstract: AIM Studies investigating the abuse-related effects of nonpeptidic delta-opioid receptor (DOR) agonists have revealed complicated results. While the DOR agonist SNC80 fails to maintain self-administration behavior in rhesus monkeys and does not alter ICSS in rats, SNC80 produces conditioned place preference and robustly stimulates locomotor activity in rodents. Therefore, the present study evaluated the involvement of the DOR system in reward-related behaviors, specifically possible primary reinforcing effects of DOR agonists and DOR modulation of responding for drug-associated cues, in rats. METHODS Naïve, male Sprague-Dawley rats (N=8 per condition) were implanted with indwelling intravenous catheters and, following recovery, were placed in operant chambers 5 d/week for 60 min sessions. Responding on the active nosepoke resulted in delivery of SNC80 (0-0.32 mg/kg/infusion) or cocaine (0.56 mg/kg/infusion) on a FR1 schedule of reinforcement and illumination of the house light followed by a 10 sec timeout. We also evaluated the effects of non-contingent administration of the DOR agonist SNC80 or the DOR antagonist naltrindole on responding maintained by cocaine or cocaine-paired cues. RESULTS SNC80 maintained responding in a dose-dependent manner yielding an inverted U-shaped function, consistent with other drugs of abuse. As work requirements increased, SNC80 failed to maintain responding and, in the absence of SNC80, responding rapidly extinguished. SNC80 also enhanced responding for cocaine-paired cues without altering responding for cocaine infusions. The DOR antagonist decreased responding for cocaine-paired cues but only when multiple/complex cues has been paired with cocaine infusions. CONCLUSION These data suggest that the DOR agonist SNC80 has primary reinforcing effects in rats but likely is a weak reinforcer and that DORs likely plays a role in modulating the conditioned reinforcing properties of drug associated cues.

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ID: 500
"The amygdala gets what the amygdala wants": Amygdalar activation by 6 second cocaine videos predicts relapse, and fully mediates outcome prediction by the positive affective bias to implicit cocaine cues.

Anna Rose Childress, University of Pennsylvania

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Stimulants

Topic: Imaging

Abstract: AIM: The amygdala is a powerful 'first responder' to incoming stimuli, critical for the feeling states that motivate approach toward desired stimuli, and avoidance of feared ones. We therefore hypothesized that activation of the amygdala in response to cocaine cues would 1) be positively correlated with the affective 'feeling' about these cues (in an implicit priming task), 2) would predict future cocaine relapse, and 3) would mediate any predictive relationship of the affective priming task for drug use outcome. METHODS: Using BOLD fMRI, we scanned stabilized cocaine inpatients during passive ("Just watch") exposure to a quasi-random alternation of 6 sec (Cocaine and Neutral) videos. We subsequently correlated (SPM 12; n=15, ongoing) the brain response in r. amygdala [5 mm sphere centered on (x,y,z): 20,-5,-22] both with median affective cocaine bias scores in an implicit priming task, and with future cocaine use (% cocaine urines positive or missing, for 12 outpt. weeks). The resulting positive correlations stimulated a formal (Hayes) mediation test. RESULTS: Consistent with our hypotheses, the brain response to cocaine cues in the amygdala showed significant positive correlations both with the affective bias scores for cocaine ($r = 0.71$; t, 3.68; $p < 0$ .002) and with future cocaine use ($r = 0.69$; t,3.48, $p < 0$ .004). The bias scores themselves positively predicted future cocaine use ($r = 0.66$; t, 3.17; $p < 0$ .007); this relationship was fully-mediated by the amygdala response to cocaine cues. CONCLUSION: Impressively, cocaine cue-triggered activity in the amygdala, a brain region conferring motivational valence to incoming stimuli, accounted for nearly half (48%) of the variance in future cocaine relapse. Cue-triggered amygdala activity was also positively correlated with the implicit 'feeling' bias toward cocaine cues, underscoring the appetitive ('I want that!') nature of the motivational state linked to future cocaine relapse. Appetitive brain states may be important targets for candidate anti-relapse interventions.

Financial Support: Financial Support: Commonwealth of Pennsylvania CURE Addiction Center of Excellence: Brain Mechanisms of Relapse and Recovery (Childress); NIDA U54 DA039002 Cocaine Cooperative Medication Development Center (Kampman, Center PI; Childress, PI Imaging Project)

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ID: 501
Subjective effects of cigarettes varying in nicotine content among opioid-maintained individuals

Joanna Streck, Vermont Center on Behavior and Health

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Behavior

Abstract: Aim: Prevalence of smoking and smoking-related mortality among opioid-dependent individuals is four-fold that of the general population, perhaps due in part to a pharmacological interaction whereby opioids increase nicotine reinforcement. This has implications for recent efforts to evaluate reduced nicotine content cigarettes in this population. We recently examined the acute subjective effects of research cigarettes with varying nicotine levels among opioid-dependent smokers. Methods: Participants were 60 opioid-dependent smokers dichotomized into methadone (METH; n=37) or buprenorphine (BUP; n=23) maintained at high (above median; n=33) vs low opioid doses (below median; n=27). Participants completed four laboratory sessions during which they smoked one research cigarette varying in nicotine content (0.4, 2.4, 5.2, 15.8 mg/g) under double-blind and acute abstinence (CO .05). Conclusions: Buprenorphine-maintained smokers may experience more variability in their response to cigarettes varying in nicotine content, which may impact their response to a reduced-nicotine standard for cigarettes. Further research with larger samples is needed to examine these effects across opioid medication type and dose.

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ID: 502
Stigma associated with receiving methadone treatment: Reliability and validity of a theory-based stigma scale for opioid-using populations

Laramie Smith, University of California San Diego

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: Aim: Methadone is the most effective treatment for opioid use disorder. However, social stigma related to medication-assisted treatment (MAT) may hinder persons from seeking or adhering to treatment. This study aims to advance measurement efforts by drawing on stigma theory to develop and evaluate the Methadone Treatment Stigma Mechanisms Scale (MT-SMS). Methods: Participants were ≥18 years old and enrolled in a methadone clinic in the Northeastern US. Embedded within a larger HIV prevention trial (2012-2013), this study is a cross-sectional evaluation of the reliability (Cronbach's alpha) and predictive validity of the MT-SMS. The MT-SMS is structured to measure three unique manifestations of stigma among persons on MAT: enacted, anticipated, and internalized. The first two mechanisms provide subscales for three stigma sources (family members, employers, physicians). Predictive validity is assessed via bivariate associations between stigma mechanisms, differentiated by stigma source, and proxies for MAT-related success. Results: Participants (n=93) had a mean age of 37 years (SD=10.2), were 50% female, 68% white, 22% employed, whose methadone dose averaged 84.8mg/day (SD=28.4mg/day). The MT-SMS demonstrated strong internal reliability for each mechanism and stigma source subscale (α=.806-.952). Greater enacted stigma from family was associated with lower readiness to reduce drug use (r= -.217,p=.049). Greater anticipated stigma from family was associated with greater heroin use on MAT (r=.303,p=.004). Greater anticipated (r=.231,p=.035) and enacted stigma (r=.320,p=.003) from employers was associated with fewer positive urine tests. This relationship was not observed for employed participants, for whom greater anticipated stigma from family was associated with having a positive urine (r= -.475,p=.034). No associations with internalized stigma or other stigma sources were observed. Conclusion: These findings suggest that MT-SMS may serve as a valuable tool for researchers and clinicians to address the processes through which methadone-related stigma functions as a barrier to MAT among persons with opioid use disorder.

Financial Support: Supported by: K01 DA039767, PI: Smith; K01 DA042881, PI: Earnshaw

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ID: 503
Familiarity, knowledge and barriers to long-acting reversible contraceptives among opioid-maintained women

Catalina Rey, University of Vermont

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Other

Abstract: Aim: Nearly 80% of pregnancies among women with opioid use disorder (OUD) are unintended while rates of effective contraceptive use are estimated at < 1 0%. Long-acting reversible contraceptives (LARC), namely intrauterine devices (IUDs) and implants, are the most effective reversible forms of contraception because they are user-independent. Nevertheless, few women in medication-assisted treatment (MAT) for OUD report they are likely to use an IUD or implant (41% and 27%, respectively). The purpose of this study was to evaluate LARC familiarity, knowledge, and potential barriers to use among women in MAT. Methods: Women in MAT for OUD completed a survey that included single questions assessing their familiarity with and perceived knowledge about LARC methods as well as 20 T/F questions testing LARC knowledge and 26 reasons that may have prevented LARC initiation. Results: Results from 81 women to date indicate only 38% have heard of LARC and 77% reported “little” or “no” knowledge about LARC methods. However, women answered 64% of LARC knowledge items correctly, on average. In the subset of 52 women who have never used an IUD, and 70 women who have never used an implant, 17 (33%) and 17 (24%), respectively, reported that they have thought about using the IUD or implant but decided not to. The most common reasons for deciding against an IUD included not wanting a foreign object in body (65%), preferring a “controllable” method (65%), and not wanting a method in that location of the body (59%). Regarding the implant, reasons included concerns about painful insertion (59%), preferring a “controllable” method (53%), and not knowing enough about the method (53%). Conclusion: Preliminary results suggest a lack of perceived knowledge about LARCs but moderate actual knowledge. Results also suggest there may be different barriers associated with IUD and implant use for women in MAT.

Financial Support: This work was supported by NIDA R01 DA036670

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ID: 504
Associations between anhedonia and substance use initiation among adolescent never users

Matthew Stone, University of California San Diego

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Adolescent

Abstract: AIM: A growing body of work has posited that anhedonia – a trait marked by diminished interest, pleasure, and enjoyment – is an important etiologic factor linked with drug addiction, escalated patterns of use, and unsuccessful cessation efforts. This study aimed to identify whether baseline anhedonia is prospectively associated with adolescent initiation of alcohol, tobacco, marijuana, and other illicit drugs. METHODS: 3,396 high school students completed five semi-annual self-report measures of anhedonia, past 6-month use of 16 substances (alcohol, five tobacco products, four marijuana products, and six illicit drugs) and other cofactors. Those that had never used any substance at baseline and provided data on anhedonia were included in the analysis (N=1,943; 53% Female). For each substance and corresponding substance use category (i.e., use of any tobacco product), bivariate (unadjusted) and multivariate (adjusted) repeated-measures logistic regression models assessed the association of baseline anhedonia with the likelihood of initiation pooled across the follow-up periods. RESULTS: For 15 of the 16 substances, unadjusted models revealed that a single standard deviation increase in anhedonia was associated with a 12% to 70% increase in the odds of initiating use of that substance. Results from substance use categorization outcomes revealed an increased likelihood of using alcohol, (OR= 1.12 [95%CI=1.02, 1.24]), any tobacco product (OR= 1.17 [95%CI=1.04, 1.32]), any marijuana product (OR= 1.22 [95%CI=1.06, 1.40]), and any illicit drug (OR= 1.29 [95%CI=1.11, 1.49]). After adjustment of several sociodemographic, environmental, and interpersonal risk factors, anhedonia remained a significant predictor of initiation for 10 substances (ORs range: 1.17-1.68), any tobacco product (OR= 1.17 [95%CI=1.04, 1.32]), and any marijuana product (OR= 1.22 [95%CI=1.06, 1.40]). Anhedonia's relationship with alcohol, e-cigarettes, and many illicit drugs was attenuated. CONCLUSIONS: Anhedonia may be useful in identifying adolescents at high risk for substance use initiation and this population may be important to target for prevention efforts.

Financial Support: Supported by NIDA R01-DA033296 (PI: Leventhal).

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ID: 505
Young adults' opioid use trajectories: Opioid type and route transitions, overdose and treatment

Honoria Guarino, National Development and Research Institute, Inc.

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: Aim: To expand research on transitions from prescription opioid (PO) misuse to heroin and injection drug use by exploring how these transitions are embedded in young people's broader trajectories of opioid and other drug use. We specifically examine the temporal relationship of opioid type and route transitions with first experiences of overdose and treatment for Opioid Use Disorder (OUD). Methods: Data are from a study of 539 18-29 year-old New York City residents, recruited via Respondent-Driven Sampling, who reported past-month nonmedical use of POs and/or heroin. Structured assessments collected self-report data on participants' ages at a series of "benchmark" events and experiences, including first use of a drug type and route of administration, the onset of "regular" use (1 or more times a week for at least 1 month) of each drug type, first overdose and first OUD treatment. Differences in benchmark ages were assessed with two-tailed paired t-tests. Results: Participants reported initiating nonmedical PO use at age 16.8, on average; most transitioned to heroin use (83%) and heroin injection (64%), generally within 4 years of first PO misuse. Although 70% had received OUD treatment (of any modality), treatment was not typically accessed until after participants had progressed to heroin use. Among the 43% who had experienced 1 or more overdoses, first overdose occurred, on average, about 6 months after first heroin use and first entry into OUD treatment. Conclusion: Results indicate a predictable, ordered pathway by which opioid use tends to progress in this cohort of young adults. Findings may help inform the optimal delivery of prevention and harm reduction efforts for youth at risk for or engaging in opioid misuse, suggesting, for example, that primary prevention programs should target pre-adolescents and that treatment programs could play an important role in expanding access to overdose education and naloxone distribution.

Financial Support: Supported by NIDA R01DA035146

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ID: 506
Patient characteristics as moderators in the extended-release naltrexone versus buprenorphine-naloxone to prevent opioid relapse (XBOT, CTN-0051) trial: Who responds to which treatment?

Edward Nunes, Columbia University and NYSPI

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: Aim: We evaluated demographic and clinical characteristics of patients, measured at baseline, as moderators of relapse outcome in a trial of extended-release naltrexone (XR-NTX) versus buprenorphine-naloxone (BUP-NX) for treatment of opioid use disorder after an inpatient admission. The goal was to explore whether there are particular patient characteristics associated with better response to either of these two treatments. Methods: Randomized, open label, multi-site effectiveness trial, in which patients admitted to inpatient programs for treatment of opioid use disorder were randomly assigned to 6 months of outpatient treatment after hospitalization with either monthly injections of extended-release naltrexone (XR-NTX) (N = 283) versus daily sublingual buprenorphine-naloxone (BUP-NX) (N = 287). The baseline assessment included demographics, patterns and severity of opioid and other substance use, severity of depression/anxiety, past treatment history, and current treatment preference. Logistic regression models were fit on the all-randomized sample, modeling Relapse (vs no Relapse) across the 6 month trial as function of treatment assignment (XR-NTX vs BUP-NX), moderator variables, and their interactions. Interactions at $P < .10$ were considered significant for this exploratory analysis. Results: Significant moderator effects were detected for: Hispanic ethnicity ($p = .04$; less Relapse on BUP-NX among Hispanics); Homelessness ($p = .001$; Less Relapse on BUP-NX among non-homeless, less Relapse on XR-NTX among homeless); Friends/family using opioids ($p = .10$; Less Relapse on BUP-NX if no friends/family using opioids); First treatment episode ($p = .06$; Less Relapse on BUP-NX if this is not the first treatment episode); and treatment preference (trends toward better outcome in preferred treatment). Conclusions: Social circumstances (homelessness, drug use in the social environment) may influence differential response to injection naltrexone versus buprenorphine in treatment of opioid use disorder. More work is needed to understand moderating effects of ethnicity, treatment history and preference, and the role of the naltrexone induction hurdle.

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Contact Title: Research Psychiatrist

ID: 507
Predicting opioid and cocaine-use trajectory with objective and subjective neighborhood measures

Samuel Stull, NIDA Intramural Research Program

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Treatment

Abstract: AIM: Personal and neighborhood socioeconomic disadvantage predict continued smoking and relapse in smokers who want to quit. We investigated neighborhood disadvantage and trajectories of other drug use. METHODS: Participants who used cocaine and opioids (n=115) provided neighborhood information and were assessed on DSM-5 Substance Use Disorder (SUD) criteria. Based on the number of DSM-5 SUD criteria met at visit 1 and one year later at visit 2, participants were categorized as stable (n=53), deteriorated (n=13), improved (n=29), or abstinent (n=20). Multinomial logistic regression was used to test whether objectively rated neighborhood disorder predicted trajectory. RESULTS: In per protocol analyses, objective measures of neighborhood disorder did not significantly predict trajectory, but worse disorder seemed associated with lower likelihood of symptom improvement (OR .90, CL95 .74-1.08, p=.26). That association was stronger (OR .79, CL95 .64-.98, p=.034) in an exploratory analysis controlling for respondents' own neighborhood perceptions. Unexpectedly, higher perception of neighborhood drug activity predicted greater likelihood of symptom improvement (OR 1.71, CL95 1.09-2.67, p=.0196). CONCLUSION: These findings suggest that, among people who continue using drugs, 12-month outcomes are better for those who live in less disordered neighborhoods and perhaps for those who report more awareness of drug activity in their surroundings.

Financial Support: NIDA IRP

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Company Affiliation: NIDA Intramural Research Program

ID: 508
Age differences in substance use and treatment among African American men incarcerated in North Carolina

Joy Scheidell, New York University School of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Epidemiology

Abstract: Aim: Given the aging of the US prison population, it is imperative to examine the distinct needs of older versus younger individuals during incarceration and re-entry, a period of heightened substance use risk. Methods: We used data from the baseline (in-prison) and four-week post release surveys of Project DISRUPT (N=207), a longitudinal cohort study among African American men being released from prison in North Carolina. Participants reported substance use and treatment prior to incarceration at baseline and in the four weeks after release; a subsample provided urine for drug testing after release. We estimated bivariate associations with substance use and treatment by older (≥40) versus younger (< 4 0) age. Results: Compared to younger participants (N=142), older participants (N=54) appeared more likely to report binge drinking on a typical day in six months prior to incarceration (28.6 vs 18.8; pvalue=0.14) and significantly higher prevalence of lifetime crack/cocaine use (66.7 vs 26.5; pvalue < 0 .0001), but lower prevalence of lifetime frequent marijuana (56.7 vs 74.2; pvalue=0.02) and ecstasy use (8.3 vs 37.1; pvalue < 0 .001). Older participants were more likely to ever attend treatment for alcohol (65.0 vs 27.2; pvalue < 0 .001) and drugs (59.3 vs 42.7; pvalue=0.04). After release, sample size/power was reduced (N=94). Approximately half in both groups reported binge drinking post release (younger: 47.8; older: 52.9; pvalue=0.65) and no participants reported engagement in post-release alcohol treatment. Post release, older participants appeared to report lower levels of any marijuana (35.3 vs 50.0; pvalue=0.18) and also greater drug treatment engagement (13.6 vs 3.1; pvalue=0.14). Urine-based drug testing suggested relatively similar levels of marijuana (32.0 vs 48.4; pvalue=0.22) and cocaine use (25.0 vs 20.0; pvalue=0.62). Conclusions: Substance use prevention and treatment should consider the specific needs of younger and older men during incarceration and as they transition back to the community.

Financial Support: R01DA028766; T32DA007233

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ID: 509
Factors related to prescription opioid misuse among HIV positive substance users: Understanding the role of substance use, mental health and ARV adherence

Maria Levi-Minzi, Nova Southeastern University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: AIDS/Immune

Abstract: Aim: Few studies have examined potential factors contributing to prescription opioid misuse among indigent, HIV positive substance users. The aim of this study is to determine how substance use, mental health, HIV treatment utilization, ARV medication adherence and diversion (unlawful channeling of regulated pharmaceuticals from legal sources to illicit markets) may be associated with prescription opioid misuse among HIV positive substance users. Methods: 503 HIV positive, substance using individuals in urban South Florida completed a comprehensive health and social risk assessment. Pearson chi-square tests were used to compare categorical demographic variables; t-tests were used to examine continuous variables, and bivariate logistic regression analyses were conducted. Results: Over half of participants were male (59.4%) and African American (69.8%). Compared to non-users, past 90 day opioid misusers (N=144) were more likely to meet criteria for substance dependence (p=.002) and significant mental health problems including depression (p=.042), anxiety (p=.039), and increased victimization (p=.048). In terms of treatment utilization, recent opioid misusers reported more time spent with primary source of HIV care (68.8 minutes vs. 55.4 minutes, p=.025). Recent prescription opioid misusers were also more likely to engage in ARV medication diversion (16.3% vs. 12.3%; p=.046), and reported higher levels of ARV side effects (9.3 vs 5.2, p=.003). They were also more likely to have reported missing ARV medications to avoid side effects (p=.009). There were no significant differences in past month ARV adherence between the two groups (9.76 days missed vs. 10.33 days missed; p=.643). Conclusions: This is one of the first studies to document the diversion of ARV medications by HIV positive opioid misusers. Results suggest that misusers are at risk for substance dependence and mental health issues, participate in ARV diversion more often, and experience increased ARV medication side effects. Despite these vulnerabilities, misusers managed to receive increased time with providers.

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ID: 510
Measurement of the role of parental closeness in emerging adulthood in altering the association between childhood trauma and adulthood drug use

Kailyn Pearce, New York University School of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Epidemiology

Abstract: AIM To examine whether the associations between childhood trauma and adulthood substance use are moderated by parental closeness. METHODS Using data from Waves I (11-21 years), III (18-26 years) and IV (24-32 years) of the National Longitudinal Study of Adolescent to Adult Health (n=12,288), we scored exposure to nine traumas before age 18: neglect, emotional, physical, and sexual abuse by a parent or adult caregiver; parental incarceration; parental binge drinking; and having ever witnessed, experienced, or been threatened with violence. We defined participants as close to their parents if they reported feeling “quite” or “very close” to either parent in emerging adulthood (Wave III). Among males and females separately, we estimated adjusted odds ratios (AOR) and 95% confidence intervals (CI) for associations between trauma score and adulthood substance use (Wave IV) and evaluated whether associations were moderated by parental closeness. RESULTS Among males, trauma was significantly associated with adulthood past year marijuana use for those reporting parental closeness (AOR: 1.24, 95% CI: 1.15, 1.33), but was not associated among those without parental closeness (AOR: 1.01, 95% CI: 0.79, 1.30). Among females, associations between trauma score and lifetime prescription drug misuse reported in adulthood significantly differed by parental closeness (close AOR: 1.28, 95% CI: 1.17, 1.41; not close AOR: 1.07, 95% CI: 0.91, 1.27). Regardless of parental closeness, each unit increase in trauma was associated with an approximate 30% increase in odds of lifetime cocaine use and prescription drug misuse in males and an approximate 20% increase in the odds of past year marijuana and lifetime cocaine use reported in adulthood among females. CONCLUSION Findings suggest that parental closeness may exacerbate the influence of childhood traumas – many of which involve close interpersonal proximity to the perpetrator of abuse by definition– on later substance use. Further research into this relationship is warranted.

Financial Support: This research was supported by the National Institute on Drug Abuse grant "Longitudinal Study of Trauma, HIV Risk, and Criminal Justice Involvement" (Principle Investigator: M.R.K.; R01DA036414).

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ID: 511
Association of nonmedical prescription opioid use with subsequent heroin use Initiation in adolescents

Lorraine Kelley-Quon, Children's Hospital Los Angeles

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Adolescent

Abstract: AIM Nonmedical prescription opioid use in youth may perpetuate and expand the national opioid epidemic if it increases risk of heroin use. Longitudinal data to test this question have been lacking. This study evaluated whether nonmedical prescription opioid use was associated with transition to heroin use initiation across mid-adolescence in a general sample of high school students. METHODS High school students (N=3,396) in Los Angeles, California completed eight semiannual surveys from 9th to 12th grade assessing nonmedical prescription opioid use, heroin use, and other factors. We performed Cox proportional hazards regression analysis to evaluate nonmedical prescription opioid use as a time-varying predictor of initiation of heroin use. RESULTS Overall, 629 (18.5%) students reported lifetime nonmedical use of prescription opioids by the final semester of 12th grade. Of the 86 students reporting lifetime use of heroin by the final semester of 12th grade, most (93%; N=80) reported nonmedical prescription opioid use prior to new heroin use. By the end of 12th grade, prevalence of heroin initiation was 13.9% vs. 0.06% in ever (vs. never) nonmedical prescription opioid users. Nonmedical opioid use in the past 6 months at each assessment was prospectively associated with likelihood of heroin use initiation over subsequent follow-ups (HR[95%CI] = 5.08[2.98-8.66]). These associations persisted after further adjustment for demographics, other substance use, and psychiatric comorbidities ($p < 0.001$). CONCLUSION Policy and interventions that reduce youth nonmedical prescription opioid use are paramount and may prevent adolescent heroin use and offset the opioid epidemic.

Financial Support: National Institutes of Health Grant (R01-DA033296)

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ID: 512
Differences in cognitive, motivational and/or sensorimotor processing preclude detection of substrain differences in oxycodone reward between 129P3/J and 129S1/SvlmJ mice

Karen Szumlinski, University of California Santa Barbara

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Opiates/Opioids

Topic: Behavior

Abstract: AIM: Substantial inter-individual variability exists in the propensity to develop, the severity, as well as the treatment outcomes, of opioid addiction. The genetic variability exhibited by 129 mouse substrains (43% polymorphism) renders comparisons amongst substrains a valuable and facile tool for identifying novel genetic factors contributing to addiction vulnerability. METHODS: Herein, we extended the results of an earlier study results by assaying male and female 129S1/SvlmJ (S1) and 129P3/J (P3) mice, bred in-house at our institution, for oral sucrose and oxycodone reinforcement, as well as differences in oxycodone dependence and place-conditioning, as well as basal anxiety. RESULTS: P3 mice readily acquired oral sucrose self-administration and responding/intake was maintained upon oxycodone substitution. S1 mice failed to acquire sucrose self-administration, despite different procedural variations, nor did they respond for oxycodone upon substitution. S1 mice also exhibited no preference for a 10% sucrose solution administered in the home cage. In a test for substrain differences in oxycodone-induced place-conditioning, S1 mice exhibited lower oxycodone-induced motor activity, but there was no substrain difference in the magnitude of locomotor sensitization. While P3 mice exhibited a robust place-preference when conditioned with 5 mg/kg oxycodone, S1 mice exhibited no conditioned response. This conditioning failure reflected low levels of locomotor-activity and compartment-switching during testing. To relate the hypo-locomotion to withdrawal severity, we then precipitated withdrawal following conditioning. However, P3 mice exhibited greater signs of opioid dependence than S1 mice. P3 mice also exhibited more signs of basal hyper-anxiety than S1 mice, although S1 mice exhibited a gross deficit in pre-pulse inhibition of acoustic startle. CONCLUSION: Taken all together, these data indicate that impairments in cognitive, motivational and/or sensorimotor processing exhibited by S1 mice preclude the ability to assay this substrain for oxycodone reward/reinforcement. Whether or not comparable results are observed for other drugs of abuse remains to be determined.

Financial Support: Faculty Research Grant Academic Senate UCSB

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ID: 513
Beyond percent days abstinent: Quality of life indices as a function of time in recovery in a nationally representative sample of US adults

M. Claire Greene, Johns Hopkins Bloomberg School of Public Health

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Epidemiology

Abstract: AIM: Reduction in substance use has typically served as the primary indicator of successful recovery outcomes in substance use research with limited attention paid to improvements in psychosocial wellbeing (e.g., quality of life, distress). The short- and long-term trajectories of psychosocial wellbeing during recovery are not well characterized; however, describing these trajectories would improve understanding of recovery milestones. METHOD: A national probability-based cross-sectional survey of US adults (n=2002) who used to have a problem with alcohol or drugs but no longer do was used to examine the relationships between time since substance use problem resolution and five psychosocial constructs: quality of life, self-esteem, happiness, psychological distress and recovery capital. Time was modeled using linear, spline, and quadratic terms to allow for non-linear trajectories in wellbeing over two temporal horizons: the first 40 years; and the first 5 years after resolving a substance use problem. These models were stratified by sex, race and primary substance to explore potential effect measure modifiers. RESULTS: In general, across the 40-year time frame there were steep increases in indices of wellbeing and steep drops in psychological distress during the first 6 years, followed by attenuated improvements. Closer examination of the first 5 years revealed drops in self-esteem and happiness during the first year followed by increases. Moderation analyses indicated that women and multi-racial/Native American participants exhibited significantly poorer wellbeing relative to men and Caucasians, respectively. Compared to alcohol and cannabis, those resolving opioid or stimulant problems had lower recovery capital in the early years. CONCLUSION: Findings suggest improvements in wellbeing after individuals resolve substance use problems with the exception of the first year where self-esteem and happiness initially decrease. Women, certain racial-ethnic minority groups, and those who have suffered with opioid and stimulant-related problems face ongoing challenges that point to a need for greater assistance.

Financial Support: This study was funded by the Recovery Research Institute at Massachusetts General Hospital, Boston, MA. MCG was supported by a grant from the National Institute on Drug Abuse (T-32DA007292 PI:R Johnson).

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ID: 515
Integrating buprenorphine into peer-support: a qualitative study exploring motivators for engagement and retention in a community-based opioid treatment program in Baltimore City

Noa Krawczyk, Johns Hopkins Bloomberg School of Public Health, Department of Mental Health

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: AIM: Buprenorphine is considered a safe and effective treatment for opioid use disorder. However, a large treatment gap remains, and engagement and continuity in care is often challenging for marginalized individuals that are largely disconnected from formal health services. Integration of buprenorphine within community-based peer support services may help facilitate access and strengthen retention in care. Methods: This qualitative study aimed to explore primary motivators for opioid treatment and potential advantages of an integrated buprenorphine-peer support program. From April-July 2017, interviews and focus groups were conducted with five program staff and peers, five active clients, and six former clients of a low-threshold buprenorphine program at a community peer-recovery site in East Baltimore. In-depth interviews and discussions explored perceptions about the program and what factors may contribute to successful engagement and retention in care. Interviews and focus groups were audiotaped, transcribed, and thematically coded using qualitative analysis software. Results: Study participants identified several avenues and motivators for treatment, including clients having community connections with the recovery site, having previous experiences with medication assisted treatment, and seeking a structured and supportive environment for their recovery. Primary benefits of the integrated program included the effectiveness of the medication in treating symptoms of opioid use disorder, receiving guidance from experienced peers in recovery, and having access to a structured program with multiple support groups available. Conclusion: Integrating buprenorphine into more traditional community support services may provide a unique opportunity to reach clients who may not otherwise access this type of treatment. As the nation struggles to address the ongoing opioid epidemic, offering new avenues and supports for care can increase access to and success of evidence-based treatments for opioid use disorder.

Financial Support: This study was funded by a Johns Hopkins Urban Health Institute Grant for community-based research. Noa Krawczyk was supported by a National institute of Drug Abuse training grant (Grant No. T32-DA007293).

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ID: 516
Benzodiazepines use “to get high” in patients admitted for addiction treatment in Spain

Francina Fonseca, Institut de Neuropsiquiatria i Addiccions

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Sedative-Hypnotics

Topic: Epidemiology

Abstract: Aims: We describe the patterns of benzodiazepines use in patients who enroll in treatment for prescription or other illegal substances dependence. Methods: EUROPAD Program data from Spain were analyzed for third quarter 2014 through third quarter 2017. Patients aged 18-65 years were included. Demographics and drugs used “to get high” in the 90 days prior to treatment intake were analyzed. Data were compared among patients endorsing the abuse of benzodiazepines and those who did not. For continuous data, T-test was utilized to determine if groups were different, and, for categorical data, chi-square tests were used. Results: A total of 162 surveys were collected in Spain (70% males, 42+9 years). The main drug at admission was heroin (53%), cocaine (24%), cannabis (11%), prescription opioids (3%), benzodiazepines (2.5%), and other (7%). A total of 69 (43%) respondents in the sample reported abuse of benzodiazepines in the last 3 months. When we compared patients using and not using benzodiazepines, we did not find differences in characteristics of patients. The only differences were in the number of drugs abused, which was higher in the benzodiazepine use group (1.57+1.01 vs. 3.22+1.24; $p < 0$ .001). Conclusions: Although not being the main drug at admission, the concomitant use of benzodiazepines is frequent in patients seeking treatment for illicit and prescription drug use. The profile of these subjects using benzodiazepines is different compared to the general population.

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ID: 517
Lighting up: Neural responses to cigarette smoking

Ariel Ketcherside, University of Pennsylvania

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Imaging

Abstract: AUTHORS: Ariel Ketcherside, Kanchana Jagannathan, Nathan Hager, Danielle Pelosi, Stefanie Darnley, Nils Fan Yang, Hengyi Rao, John Detre, Sudipto Dolui, Teresa Franklin, Reagan Wetherill BACKGROUND: Cigarette smoking leads to changes in brain physiology. Several studies have examined the effects of nicotine, smoking and smoking withdrawal on regional cerebral blood flow; however, findings have been somewhat inconsistent. In general, findings suggest that nicotine and/or smoking is associated with increased and decreased CBF in brain regions rich in nicotinic acetylcholine receptors (nAChR), which are also brain regions involved in reward processing, interoception, and cognitive control. AIM: To date, there are no known magnetic resonance imaging studies that have explored resting state cerebral blood flow (CBF) immediately prior to and after smoking a cigarette. We hypothesized that smoking a cigarette would induce CBF changes in the anterior cingulate cortex (ACC), ventral striatum, hippocampus, and insula. METHODS: Using the advanced technique of 3-dimensional perfusion fMRI, we examined CBF in female smokers. Subjects smoked a cigarette 75-90 minutes prior to their scan session, to standardize time since last smoked. Resting CBF data were acquired before and immediately after smoking a cigarette (administered in the scanner). Although data collection is ongoing, we conducted preliminary analyses on data from six subjects an average FTND score of 2.67 (SD=1.63). Data were analyzed in SPM. RESULTS: A paired t-test showed that smoking increased CBF in bilateral parahippocampal gyrus (peak tL = 5.05, tR = 6.34), and decreased CBF in a large portion of the anterior cingulate (from ventral- to mid-cingulate, t=-5.16), and right ventral anterior insula (t=-4.32). CONCLUSION: Although preliminary, our findings suggest smoking a cigarette, which exposes the smoker to both the nicotine and non-nicotine factors associated with smoking, alters CBF in brain regions involved in learning/memory processes and interoception. These preliminary yet robust results will be expanded upon with additional subjects and behavioral correlates.

Financial Support: Supported by: NIDA R01DA040670

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ID: 518
Sustained decreases in heroin self-administration in rhesus monkeys after a single administration of SH-1

David Maguire, University of Texas Health Science Center

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: Aim. The opioid epidemic remains a serious public health challenge, despite the availability of medications that are effective in some patients (naltrexone, buprenorphine, and methadone); thus, there is a desperate need for more and better approaches to treat this national emergency. This study explores the therapeutic potential of a novel, pseudo-irreversible, and highly selective mu opioid receptor antagonist (SH-1) as a treatment for opioid abuse by examining its capacity to attenuate the reinforcing effects of heroin in rhesus monkeys. Methods. Monkeys (n=4) responded for i.v. infusions of heroin (0.0032 mg/kg/infusion) or cocaine (0.032 mg/kg/infusion) under a fixed-ratio 30 schedule of reinforcement. Naltrexone (0.0032-0.032 mg/kg) or SH-1 (0.032-0.32 mg/kg) was administered sc prior to the session. Results. Naltrexone dose-dependently decreased responding for heroin during the session immediately following pretreatment, with responding for heroin returning to baseline levels the next day. SH-1 also dose-dependently decreased responding for heroin; however, responding for heroin remaining decreased for up to 8 days. Doses of naltrexone (0.032 mg/kg) and SH-1 (0.32 mg/kg) that significantly decreased responding for heroin did not affect responding for cocaine. Conclusion. Naltrexone and SH-1 decreased heroin but not cocaine self-administration, consistent with their actions as opioid receptor antagonists. The long lasting effect of SH-1 on heroin self-administration is likely due to its pseudo-irreversible binding to mu opioid receptors. To the extent that SH-1 can selectively attenuate opioid self-administration for prolonged periods, this novel drug could be superior to currently available treatments for opioid abuse.

Financial Support: Supported by the National Institutes of Health (R01DA005018) and the Welch Foundation (AQ-0039).

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ID: 519
How drugs without abuse potential are removed from control under the controlled substances act

Katherine Bonson, U.S. Food and Drug Administration

Abstract Category: Theoretical/Commentary

Abstract Detail: Human

Drug Category: Polydrug

Topic: Policy

Abstract: AIM When the Controlled Substances Act (CSA) was made law in 1970, Congress placed drugs with narcotic, sedative, stimulant and hallucinogenic properties into one of five "schedules": Schedule I for drugs with high abuse potential and no currently accepted medical use (except for research), and Schedules II, III, IV and V for drugs with currently accepted medical use and varying degrees of abuse potential and ability to produce dependence. Since then, hundreds of new compounds have been controlled under the CSA, including illicit drugs and new FDA-approved medications with abuse potential. Some compounds are automatically scheduled under the CSA based on their origin. For example, any compound that is derived from opium or from ecgonine (a compound in coca plants) is a Schedule II drug, even if it has not been evaluated as an individual chemical. Similarly, any drug that is derived from barbituric acid is a Schedule III drug. Finally, most parts of the cannabis plant and most of its chemical derivatives are Schedule I substances. Any automatically-scheduled drug, as well as any drug prospectively evaluated for abuse, may be down-scheduled, up-scheduled, or removed from CSA control if new abuse-related data become available. This presentation will detail the numerous compounds that were initially scheduled under the CSA but were subsequently decontrolled. The process of evaluating whether a drug qualifies for removal from the CSA will be detailed – as will the process of re-scheduling a drug when it is later shown to be have abuse potential. CONCLUSION It is commonly thought that once a drug has been scheduled under the CSA, it is impossible for it to be removed. However, this presentation will demonstrate that when drugs can be shown, using modern methodology, to have no significant abuse potential, they may be (and have been) removed from control under the CSA.

Financial Support: Food and Drug Administration

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Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: U.S. Food and Drug Administration

ID: 520
The role of nominal group technique in scaling up opioid agonist treatment in Ukraine

Lynn Madden, APT Foundation, Inc.

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: AIDS/Immune

Abstract: AIM To identify barriers to opioid agonist therapy (OAT) scale-up at a national level in Ukraine using Nominal Group Technique (NGT), a group process for problem identification and ranking solutions to complex issues. Expanding OAT is the most cost-effective, evidence-based strategy for reducing HIV transmission in Ukraine, which has the highest HIV prevalence in Europe. METHODS Learning collaboratives were established in October 2014 as part of an ongoing Network for Improvement of Addiction Treatment (NIATx) approach used to identify process changes for OAT scale-up in Ukraine. Using the NIATx framework, beginning in April 2015 three trained coaches conducted bi-annual NGT sessions with OAT providers. Perceived barriers to OAT scale-up were compared for NGT sessions conducted with a group of OAT providers (n=18) in April 2015 to those identified and ranked with OAT providers (n=24) in November 2017. RESULTS In April 2015 the top three ranked barriers to OAT scale-up were: 1) strict regulations and inflexible policies; 2) no systematic approach to assessing OAT needs on a regional level; and 3) limited funding and finance mechanisms. In contrast, in November 2017 the barriers identified were: 1) fixed number of allocated OAT slots at the MoH level; 2) insufficient number of OAT providers at the site level; and 3) unwillingness of pharmacies to dispense OAT medication. CONCLUSIONS The ongoing collaboration between regional OAT providers via regular group phone calls and biannual meetings has resulted in rapid positive changes in OAT dynamics in Ukraine, including changes to the perceived barriers to OAT expansion. The change in ranked barriers by the OAT providers may be related to the use of NGT which allows providers and stakeholders the opportunity to unify their voices for advocacy. Advocacy from 2015 – 2107 has contributed to key changes in MoH OAT regulations that support OAT scale up.

Financial Support: NIDA R01 DA033679-06

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Company Affiliation: APT Foundation, Inc.

ID: 521
Sex differences in corticostriatal local field potentials: Implications for alcohol drinking behavior

Angela Henricks, Dartmouth College

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Alcohol

Topic: Neurobiology

Abstract: Aim: Activity in the corticostriatal circuit (i.e., the medial prefrontal cortex [mPFC] and nucleus accumbens [NAc]) is important in regulating alcohol consumption. Clinical and preclinical studies have demonstrated sex differences in alcohol drinking behavior, but the neurobiological origins of these sex differences have not been studied in rats. Therefore, in the current study, we measured corticostriatal activity and alcohol consumption in male and female rats. We hypothesized that we would be able to: 1) predict sex based on corticostriatal circuit activity alone; and 2) replicate previous findings showing that female rats drink more alcohol than male rats. Methods: Local field potentials (LFPs) from the mPFC and NAc shell were recorded in awake male (N=10) and female (N=10) rats. Using the machine-learning algorithm lasso, we built a predictive model comparing data generated from corticostriatal LFPs to randomly permuted data. Then, after being trained to drink, rats were allowed free access to alcohol in five 30-minute sessions. We were therefore able to determine whether there were important differences in: 1) corticostriatal circuit activity; and 2) alcohol drinking behavior between males and females in the same animals. Results: LFP data generated from the NAc shell and mPFC predicted which animals were male and which were female better than randomly permuted data (71.5% vs. 55.9%; Cohen's d = 0.95). Additionally, female rats drank more alcohol than male rats across the five drinking sessions ($p < 0$ .05). Conclusion: Our results support the hypothesis that there are distinct sex differences in corticostriatal LFPs and levels of alcohol consumption. We are currently attempting to determine if there is a causal relationship between corticostriatal circuit activity and alcohol consumption levels in male and female rats, which will inform future research aimed at understanding the neurobiological mechanisms underlying sex differences in alcohol drinking behavior.

Financial Support: This work was supported by funds from the Department of Psychiatry at the Geisel School of Medicine at Dartmouth (AG, WD), the Hitchcock Foundation (WD), an LRP grant from the NIH NCATS (WD), the Dartmouth Clinical and Translational Science Institute, under award number UL1TR001086 (WD) and KL2TR001088 (WD) from NIH NCATS.

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Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: Dartmouth College

ID: 522
Gender differences in the provision of injection initiation assistance: A comparison of three North American settings

Stephanie Meyers, University of California San Diego

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Sex Differences

Abstract: Aim: Women who inject drugs are at an increased risk of HIV and hepatitis C transmission, particularly during injection drug use initiation events, which are often facilitated by people who inject drugs (PWID). However, less is known regarding how the gender of PWID influences their risk of initiating others into drug injecting. We therefore sought to assess the impact of gender on the risk that PWID provide injection initiation assistance across multiple settings. Methods: We employed data from PWID enrolled in the PReventing Injecting by Modifying Existing Responses (PRIMER) study, a multi-cohort study investigating factors that influence injection initiation assistance provision. Data were drawn from three cohort studies in San Diego, USA (STAHR II), Tijuana, Mexico (El Cuete IV), and Vancouver, Canada (VDUS). Independent analyses were performed for each site. Logistic regression analyses were conducted with lifetime provision of injection initiation assistance as the outcome and gender as the independent variable of interest, while adjusting for potential confounders. Results: Overall, 23% (288/1234) of participants reported having ever provided injection initiation assistance in Vancouver, 14% (76/532) in Tijuana, and 38% (130/347) in San Diego. Approximately 36%, 39% and 28% of the Vancouver, Tijuana, and San Diego cohorts, respectively, identified as female. In Tijuana, men were more than twice as likely to provide injection initiation assistance after controlling for age, years since first injection, and non-injection heroin use (Adjusted Odds Ratio = 2.17, 95% Confidence Interval: 1.22-3.84). However, gender was not significantly associated with providing injection initiation assistance in either San Diego or Vancouver. Conclusion: This research suggests that sociocultural context may impact gender differences in injection initiation provision among PWID. These findings may inform site-specific programs to reduce initiation into drug injecting, which would in turn reduce the risk of blood-borne disease transmission among vulnerable drug-using populations.

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ID: 523
Sex differences in the relationship between basal leptin and alcohol- and food-related reward behaviors: A functional magnetic resonance imaging study.

Dongju Seo, Yale University School of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Alcohol

Topic: Neurobiology

Abstract: Aim: Alcohol consumption significantly influences metabolic function. Leptin, the satiety hormone, may influence alcohol consumption. However, few studies have examined neural mechanisms underlying the link between alcohol intake and leptin. It also remains unclear whether leptin is differentially involved in alcohol- and food-related reward behaviors. The current study investigated neural response and the association between basal leptin and reward-related behaviors (alcohol, food). Methods: Participants were 93 healthy individuals (Mean age = 27.3 years, 38 women) with no sex difference in demographics including age, education, and Body Mass Index (BMI). Fasting leptin levels were measured at 8 am. Brain activity during stress, food cue, and neutral-relaxing imagery was examined using functional magnetic resonance imaging (fMRI). Results: Across participants, higher basal leptin was associated with lower alcohol-related problems ($r=-0.32$, $p < 0$ .01) and alcohol consumption ($r=-.38$, $p < 0$ .01). Hierarchical regression analyses indicated that an inverse association between basal leptin and alcohol problems remained significant, after controlling for age and BMI (Beta = -.13, p=.003). In addition, significant sex differences were found; women displayed higher basal leptin levels than men ($t = 7.85$, $p < 0$ .001), whereas men had greater alcohol problems indexed by the AUDIT scores ($t=-3.22$, $p < 0$ .01). The inverse relationship between basal leptin and alcohol problems was stronger in women than in men ($Z =1.73$, $p < 0.05$), such that women with higher basal leptin tend to report lower alcohol problems and intake compared with men. fMRI results indicated that basal leptin is positively associated with activity in the medial prefrontal cortex (mPFC) during food cue exposure ($r=.4$, $p < 0$ .01, whole-brain corrected), which was also positively associated with food craving, especially in women ($r=.4$, $p < 0$ .01). Conclusion: The differential association of high basal leptin with lower alcohol problems, but with increased mPFC response to food-cues, suggests that leptin may indicate susceptibility to different types of reward-seeking behaviors, especially in women.

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Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: Yale University School of Medicine

ID: 524
Trauma, race/ethnicity and risk for su and sud among florida justice-involved children

Micah Johnson, University of Florida

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Adolescent

Abstract: Aim: Traumatic childhood experiences predict substance use (SU) and substance use disorders (SUD). Justice-involved children (JIC) experience more trauma, and minority JIC have higher health risks. However, the interaction effects of trauma and race/ethnicity on SU/SUD among JIC have not been tested. We hypothesize that (H1)-trauma will correlate with SU/SUD; (H2)-minority JIC will have higher SU/SUD; and (H3)-the effects of trauma on SU/SUD will be exacerbated for Blacks and Latina/os. Methods: Cross-sectional data on 80,441 JIC from the Florida Department of Juvenile Justice (FLDJJ) were examined (25,113 were assessed for SUD). Childhood trauma was measured via the Adverse Childhood Experiences (ACEs) score. To test the hypotheses, bivariate and multivariate logistic regression analyses were employed. Results: For one-unit increase in ACEs, JIC were 1.13 times more likely to report SU (AOR=1.13) and, among JIC assessed, 1.09 times more likely to be diagnosed with SUD. Blacks were 2.59 times more likely to report SU than Whites (AOR=2.59) but, among JIC assessed, Blacks had a 40% less chance of being diagnosed with SUD (AOR=.60). The effect of ACEs on SU and SUD were no different for Blacks versus Whites. Latina/os were 1.61 times more likely to report SU than Whites (AOR=1.61), but, among JIC assessed, Latina/os had a 12% decreased chance of being diagnosed with a SUD than Whites (AOR=.88). The effect of trauma on SU was exacerbated for Latina/os –but not for SUD. For one-unit increase in ACEs, Latina/os were 1.2 times more likely to report SU (AOR=1.02). Conclusions: Black and Latina/o JIC reported more SU, but were less likely to be diagnosed with SUD. Trauma correlated with SU/SUD, and trauma-exposed Latina/os had higher risk for SU. Stakeholders must employ effective community engagement strategies to ensure that all trauma-exposed JIC are adequately assessed, diagnosed and provided services that are trauma-informed and culturally-relevant.

Financial Support: This research was supported by the UF Substance Abuse Training Center in Public Health from the National Institute of Drug Abuse (NIDA) of the National Institutes of Health under award number T32DA035167. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

First Name: Micah

Last Name: Johnson

Degrees: MA MD Ph.D etc:: MA, Ph.D

Company Affiliation: University of Florida

ID: 526
Peer norms and access to prescription drugs in the home are associated with nonmedical prescription opioid use among adolescents

Kathleen Egan, University of Florida

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Adolescent

Abstract: Aim: The aim of this study was to examine nonmedical prescription opioid use (NMPOU) among adolescents using the Theory of Reasoned Action, descriptive norms, and the availability hypothesis. Methods: In the fall of 2017, adolescents attending 12 middle and 10 high schools in 10 south central Kentucky counties were invited to participate in an anonymous, school-based survey. A total of 11,800 adolescents completed the survey. Logistic regression was conducted to examine the association between NMPOU and constructs of the Theory of Reasoned Action (i.e., attitudes and subjective norms), descriptive norms (i.e., peer use), and parental control of access to opioids in the home. Results: There were 311 (2.8%) adolescents who reported NMPOU in the past 12 months. Neither gender nor race were significantly associated with NMPOU but adolescents in higher grade levels were significantly more likely to endorse NMPOU (OR=1.40; CI=1.32, 1.49). After controlling for demographics (i.e., gender, grade, and race), adolescents who perceived that NMPOU was risky (AOR=0.68; CI=0.61-0.76) and their parents and peers disapproved of NMPOU (AOR=0.57; CI=0.50-0.65 and AOR=0.45; CI=0.41-0.50, respectively) were less likely to report NMPOU. In comparison, adolescents who reported more of their peers engage in NMPOU were significantly more likely to endorse NMPOU (AOR=2.47; CI=2.26-2.71). Adolescents with parents who restricted access to POs were significantly less likely to report NMPOU (AOR=0.50; CI=0.38-0.65). After controlling for all variables, only grade-level (AOR=1.25; CI=1.14-1.36), peer disapproval of NMPOU (AOR=0.57; CI=0.49-0.66), peer NMPOU (AOR=2.05; CI=1.82-2.32), and restricted access to PO by parents (AOR=0.70; CI=0.51-0.96) were related to NMPOU. Conclusion: Adolescent NMPOU is influenced by peer subjective and descriptive norms and whether or not they have access to prescription opioids in their home. Prevention efforts should focus on restricting access to PO at home and changing adolescents' norms related to NMPOU.

Financial Support: This research was supported by the NIDA T32 training grant at the UF Substance Abuse Training Center in Public Health from the National Institutes of Health (T32DA035167). The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

First Name: Kathleen

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Company Affiliation: University of Florida

ID: 527
Prescription opioid injection among young adults who use drugs: Associations with HCV infection and drug overdose

Pedro Mateu-Gelabert, National Development and Research Institute, Inc.

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: Aim: America's opioid epidemic has contributed to a substantial increase in the number of young people who inject drugs (PWID). This mixed-methods study describes the prevalence of prescription opioid (PO) injection among young PWID and examines its association with drug overdose and HCV infection. Methods: Qualitative analysis is based on 46 semi-structured interviews with young adult opioid users (aged 18-32 years). Interview segments describing PO injection were analyzed for common themes. Quantitative data are from structured assessments with 539 young adult opioid users (ages 18-29) recruited via Respondent-Driven Sampling. Analyses are based on the subsample of participants (66%) who reported ever injecting drugs. All variables were assessed via self-report, except HCV status which was established via rapid antibody testing. Results: Qualitative interviewees described injecting a variety of POs (short- and long-acting). In contrast to heroin, preparing abuse-deterrent pills for injection is cumbersome, often requiring extended manipulation, more water, and multiple injections in a single injecting episode. Among RDS-recruited participants, the majority of PWID reported injecting POs, either sporadically (33%) or regularly (26%). Ever injecting POs was significantly associated with: anti-HCV positivity (OR=3.26, p $100,000/year vs. $0-$ 50,000/year; OR= 2.20, p
Financial Support: Supported by NIDA R01DA035146

First Name: Pedro

Last Name: Mateu-Gelabert

Company Affiliation: National Development and Research Institute, Inc.

ID: 528
Characteristics of patients using cannabis in a surgical cohort

Jenna Goesling, University of Michigan

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Prevention

Abstract: Aims: With the changes in access to legal cannabis, medical and recreational cannabis use has increased among adults. Though emerging data suggests potential benefits for numerous chronic conditions including chronic pain, medical cannabis remains controversial in part due concerns about the potential for misuse. With use increasing, it is imperative that healthcare providers assess and understand patients' use of cannabis as it may impact short- and long-term health outcomes. We examined the prevalence of cannabis use and related clinical characteristics in a large cohort of surgical patients. Methods: We used cross-sectional survey data from 1445 participants (M age = 58.7, 34% male) undergoing elective surgical procedures at the University of Michigan. On the day of surgery, participants completed questionnaires about pain, functioning, mood, medication, and cannabis use (prevalence, medical vs. recreational, medical condition for which cannabis is used, and frequency). Using independent sample t-tests and chi-square tests, we examined differences between cannabis users and non-cannabis users on several clinical characteristics. Results: Overall, 5.6% of surgical patients reported cannabis use with 54.88% reporting medical use only, 24.39% reporting both medical and recreational use, and 18.29% reporting recreational use only. The most common reason for medical use was chronic pain (76.8%). Frequency of cannabis use was M days/month = 23.4. Cannabis users reported worse pain severity ($p < 0 .001$), lower functioning ($p < 0 .001$), greater sleep disturbances ($p < 0 .001$), and more symptoms of anxiety ($p < 0 .001$) and depression ($p < 0 .001$) compared to non-cannabis users. Additionally, cannabis users reported more opioid use (29.3%) and benzodiazepine use (18.3%) compared to non-cannabis users (16.6%, $p < 0 .001$ and 9.0%, $p < 0.01$ respectively). Conclusion: Among surgical patients, cannabis users had increased risk on factors associated with poor surgical outcomes, including more affective distress and opioid use. Screening for cannabis use is needed in medical settings in order to determine potential impacts on health and clinical outcomes. Follow up studies will assess differences in post-surgical outcomes between cannabis users and non-cannabis users.

Financial Support: University of Michigan, Department of Anesthesiology.

First Name: Jenna

Last Name: Goesling

Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: University of Michigan

ID: 529
Research design and participant experience in clinical addictions randomized controlled trials: A nested qualitative exploration of the CTN-0055 CHOICES study

Lindsey Richardson, University of British Columbia

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: Background: While nested social scientific studies commonly inform the conduct of randomized controlled trials (RCTs), such studies are rare in substance use disorder (SUD) trials despite how patient experiences of brain disorders, criminalization and stigmatization may impact the conduct SUD RCTs. Aim: This study sought to explore how SUD RCT design and study operations shape participant experiences. Methods: We conducted a nested qualitative RCT participation study alongside the CTN-0055 CHOICES study, an open-label RCT testing the feasibility and acceptability of extended-release naltrexone (XR-NTX) vs. treatment-as-usual (TAU) for alcohol and opioid use disorders in HIV clinics. Among 22 participants at one participating site, semi-structured interviews following the conclusion of study participation canvassed study experiences. Results: Thematic analyses of verbatim interview transcripts identify key RCT features that impacted participation experiences. First, participants noted the importance of pre-existing clinical care relationships in motivating participation. Second, participant narratives revealed misperceptions about the study's purpose and conflated research with treatment despite perceived redundancy in recruitment scripts. Third, participant misunderstandings of randomization and TAU comparisons signalled potential consequences for study retention, though actual study retention was extremely high. Fourth, participants linked select procedures to participation challenges, including perceived time limitations and stipend insufficiency for pre-initiation detox and medication initiation required for XR-NTX participants, and fear of punitive measures for suboptimal "study performance" (e.g., relapse). Finally, participants noted challenges transitioning out of the study linked to study medication unavailability, loss of support and post-study uncertainty. Conclusion: Results highlight participant interaction with RCT design components, which often reflected the characteristics of substance use disorders and residual impacts from stigmatization in non-research care and social settings. Future addiction RCTs may benefit from further optimizing modifiable RCT components (e.g., medication initiation windows) to support participant experience, particularly following study conclusion. Support: Study support came from the Canadian Institutes of Health Research (MOP137068) and NIDA (UG1DA015815).

Financial Support: Study support came from the Canadian Institutes of Health Research (MOP137068) and NIDA (UG1DA015815)

First Name: Lindsey

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Degrees: MA MD Ph.D etc:: Ph.D

Company Affiliation: University of British Columbia

ID: 530
Patterns of prescription opioid use and at-risk drinking among older women in north central Florida

Mirsada Serdarevic, University of Florida

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Epidemiology

Abstract: Aim: Combined use of prescription medications and alcohol is prevalent among older adults and negatively affects health. Though alcohol and opioid use impacts women more than men, little is known about characteristics of older women who use both. The current analysis aims to evaluate those characteristics among these women in North Central Florida. Methods: Participants were recruited through HealthStreet, an outreach program in which Community Health Workers (CHWs) assess health needs and concerns among community members. CHWs collect demographic, substance use, and other health data from participants. Female participants (≥ 45 years) interviewed November 2011 - October 2017 were included and stratified into four groups: neither prescription opioid nor at-risk alcohol use (3 or more drinks in a single day), at-risk alcohol use only, prescription opioid use only, and both prescription opioid and at-risk alcohol use. Chi-square and ANOVA tests were used to compare these groups. Results: Among the 2,832 women (55% black; mean age 58 years), 68% reported neither prescription opioid nor at-risk alcohol use, 13% reported at-risk alcohol use only, 16% reported prescription opioid use only, and 3% reported use of both in the past 30 days. Concurrent prescription opioid and at-risk alcohol use were significantly associated with comorbid depression and anxiety ($p < 0$ .0001); women who endorsed prescription opioid use only were significantly more likely to report a history of back pain, cancer, or diabetes compared to their counterparts ($p < 0$ .0001). Younger women (45-59 years) were significantly more likely to report prescription opioid and/or at-risk alcohol use compared to older women (60+ years; $p < 0$ .0001). Conclusion: Nearly a third of women reported prescription opioid and/or at-risk alcohol use in the past 30 days. Because the risk and consequences of concomitant alcohol and opioid use increase with age, interventions tailored to older women, especially women aged 45-59 years, are needed.

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First Name: Mirsada

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Company Affiliation: University of Florida

ID: 531
Inability to discontinue chronic hypnotic use

Timothy Roehrs, Henry Ford Health System

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Sedative-Hypnotics

Topic: Treatment

Abstract: AIM: Inability to discontinue chronic hypnotic use by people with insomnia remains a clinical concern. However, that "inability" has never been directly tested in a controlled prospective study using self-administration choice procedures. This is a preliminary report of results from an on-going "blinded" clinical trial in which people with insomnia are instructed to stop taking their study medication after 6 months of nightly use. METHODS: DSM-V diagnosed people with insomnia (n=19, 17 females), aged 26-53 yrs, with a polysomnographic sleep efficiency of 12 min and 11 latencies of 11- 5 min. Participants were randomized to zolpidem XR (12.5 mg), eszopiclone (3 mg) or placebo nightly for 6 months (blinded groups A: n=7, B: n=5, C: n=7). After 6 months, over a 2-week choice period, they were given the instruction to discontinue their nightly hypnotic use with an opportunity, if necessary, to self-administer either 1, 2, or 3 capsules of their assigned medication (zolpidem XR 6.25 mg 6.25 mg, placebo; eszopiclone 2 mg, 1 mg, placebo as capsules 1, 2 and 3 respectively; or 3 placebos). RESULTS: Over the 2 weeks 15 participants took 9 total capsules came from one of the medication groups and 3 of those 4 had high MSLTs. CONCLUSION: In these preliminary data the majority (79%) of the participants were able to discontinue use of their 6-month nightly hypnotic use. MSLT status and medication group may help identify those few with difficulty discontinuing.

Financial Support: NIDA, grant#: R01DA038177 awarded to Dr. Roehrs.

First Name: Timothy

Last Name: Roehrs

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Henry Ford Health System

ID: 532
Direct correlations between breath and blood alcohol concentrations in six different real-world settings

Elizabeth Ryan, McLean Hospital, Harvard Medical School

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Alcohol

Topic: Other

Abstract: AIM: The gold standard ethanol measurement is blood alcohol concentration (BAC). However, breath samples are more practical in terms of analysis speed, convenience, and lower infection risk. Research has identified several factors that may influence breath alcohol concentration (BrAC) accuracy, which may affect the breath-blood alcohol partition coefficient. The goal of the present study was to document and quantify the differential effect of real-world drinking scenarios on BrAC compared to BAC. METHODS: Healthy social drinkers volunteered to participate in up to six scenarios: Exercise (n=13), “Last Call” (n=9), Snacking (n=8), Full Meal (n=7), and two control groups, Low Dose (n=7) and High Dose (n=16). Blood was sampled at 2- or 5-minute intervals and BAC was quantified by gas chromatography/FID. The dose (0.3 or 0.9 g/kg of 40% vodka) was consumed in 2 minutes for the Exercise, Last Call (except for the final drink), and Control scenarios or over 1.5 hours for the eating scenarios. BrAC was recorded every 2 or 5 minutes using a hand-held breathalyzer. RESULTS: The relationship between BrAC and BAC across scenarios was documented via regression analyses; the overall R2 was 0.8906 and the R2 values of individual scenarios were 0.8643 (Last Call), 0.8334 (Snacking), 0.8321 (Control–High), 0.7814 (Exercise), 0.7412 (Control–Low), and 0.6022 (Full Meal). To correct for buccal alcohol contributing to artificially high readings after consuming alcohol, BrAC data points within 20 minutes of consumption were removed. CONCLUSION: Results confirm the strong relationship between BrAC and BAC, but advance our knowledge by demonstrating this correlation persists after manipulating the alcohol dose, speed of consumption, and engagement in a variety of real-world scenarios including Exercise, Last Call, and Snacking. The one exception was the Full Meal scenario and the low correlation for this condition is most likely due to a restricted range of data points relative to the other scenarios.

Financial Support: Alliance of Automobile Manufacturers

First Name: Elizabeth

Last Name: Ryan

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: McLean Hospital, Harvard Medical School

ID: 533
An examination of psychological distress, healthcare coverage, and poly-tobacco product use among gay and bisexual men

Raymond Moody, Graduate Center and CHEST

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Behavior

Abstract: AIM: High rates of combustible cigarette usage among gay and bisexual men (GBM) have been observed but less is known about use of other forms of tobacco-related products. The present study examined psychological distress and polytobacco product usage and the moderating role of healthcare coverage. METHODS: A national sample of 1,017 HIV-negative GBM completed measures of sociodemographic characteristics, healthcare coverage, depression, anxiety, and tobacco product usage. Polytobacco product usage was calculated as the current number of tobacco-related products used (0=0 products; 1=1 product; 2=2+ products). We used Chi-squares and ANOVAs for bivariate analyses and Poisson regressions for multivariable analyses. RESULTS: The majority of men (827, 81.3%) reported no tobacco-related product use; 139 (13.7%) reported use of one tobacco-related product, and 51 (5%) reported use of two or more tobacco-related products. In bivariate analyses, depression and anxiety were associated with combustible cigarette ($F = 5.09$, $p = .006$; $F = 11.29$, $p=.001$) and e-cigarette use ($F = 7.87$, $p=.001$; $F = 11.50$, $p=.001$). Healthcare coverage was associated with combustible cigarette ($X2 = 25.33$, $p=.001$), e-cigarette ($X2 = 15.59$, $p=.001$), and cigar use ($X2 = 12.77$, $p = .002$). In multivariable analyses, adjusting for demographic characteristics, healthcare coverage (AOR=0.47, $p=.001$) and anxiety symptoms (AOR=1.42, $p = .024$) were associated with polytobacco product usage. Healthcare coverage did not moderate these associations. CONCLUSION: This study suggests anxiety is associated with both combustible and electronic cigarette use as well as polytobacco product use. Although healthcare coverage did not moderate the examined associations there was evidence of a direct negative effect. It is plausible that GBM with access to healthcare receive important information on risks associated with tobacco product usage contributing to a reduction in use. Together, these findings suggest screening and treatment of anxiety symptoms is an important target of smoking interventions. Access to healthcare remains of particular concern for marginalized communities and reduced healthcare coverage may result in increased risks in smoking among GBM.

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First Name: Raymond

Last Name: Moody

Degrees: MA MD Ph.D etc:: MA

Company Affiliation: Graduate Center and CHEST

ID: 534
Co-occurring tobacco and cannabis use prenatally increases odds of ADHD in kindergarten

Shannon Shisler, Research Institute on Addictions

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Perinatal

Abstract: Aim: Though tobacco is the most commonly used substance among pregnant women, it is estimated that 24-30% of women who smoke tobacco also smoke cannabis. Despite high levels of comorbidity, little is known about the effects of co-occurring use during pregnancy. While prenatal tobacco exposure has been linked to childhood attention problems, we hypothesized stronger effects of co-occurring use on ADHD risk in kindergarten compared to tobacco use alone. Methods: Cigarette smoking (n = 151) and demographically similar non-smoking (n = 61) women were recruited in the first trimester of pregnancy, with follow-up assessments once in each trimester and repeated intervals from infancy to early school age. Among smokers, 56% (n = 85) also used cannabis. Heavy alcohol use (>1 drink/day or ≥4 drinks in a single setting) was an exclusion criteria. Maternal self-reports, salivary assays, and infant meconium at delivery were used to measure substance use. ADHD was assessed using maternal reports on the Computerized Diagnostic Interview Schedule for Children (C-DISC-IV) in kindergarten. We used logistic regression to examine the association between substance exposure and ADHD diagnosis. Results: There was no association between prenatal exposure to cigarettes only and child ADHD diagnosis. However, relative to children of women who did not smoke during pregnancy, children prenatally exposed to both cigarettes and cannabis were 2.8 times more likely to meet criteria for a positive ADHD diagnosis in kindergarten (b = 1.015, SE=.51, p = .044), above and beyond the effects of maternal education, maternal age, SES and child sex. Conclusion: Given that cigarettes and cannabis are two of the most commonly used drugs during pregnancy, it is important to better understand their joint impact. Our results suggest that the comorbid use of cigarettes and cannabis during pregnancy is a risk factor for later attention problems.

Financial Support: Supported By: R01DA019632 (RDE).

First Name: Shannon

Last Name: Shisler

Company Affiliation: Research Institute on Addictions

ID: 535
Documented prevalence of opioid use disorder and its treatment across 8 diverse health care systems in the U.S.

Denise Boudreau, Kaiser Permanente Washington Health Research Institute

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: Aim: Despite recommendations that OUD be treated in primary care (PC), most PC clinics do not offer medication treatment for OUD. A large US general population survey indicated 0.9% of adults met DSM-IV criteria for OUD in 2015. The prevalence is likely higher in PC but estimates are lacking. The Primary Care Opioid Use Disorders (PROUD) trial is a NIDA Clinical Trials Network pragmatic trial on the effectiveness of a collaborative care model to increase OUD treatment in PC across diverse health systems. In Phase 1 of PROUD, we estimated OUD diagnosis and treatment in PC. Methods: The sample included patients 16+ years who visited PC clinics within 8 health systems during fiscal years (FY) 2014-2016. Data on diagnoses, medication use, and health care utilization were ascertained from each health systems' electronic health record and insurance claims during FY 2014-2016. Documented OUD was defined as 1+ International Classification of Disease codes for OUD (active or remission) and treatment defined as 1+ medication orders, dispensings, or procedure codes for oral buprenorphine or injectable naltrexone. Result: 1,477,981 unique patients were seen in PC clinics during the study period. Over 3 years, 1% of patients had a diagnosis of OUD. The prevalence was 0.6% in 2014 and 2015 and 0.7% in 2016. OUD during the 3-year period ranged from 0.2% to 1.5% across health systems. Of patients with OUD, only 19% were treated, the majority (98%) of treatment was with buprenorphine. Receipt of OUD treatment varied across health systems: 3%, 4%, 9%, 12%, 14%, 17%, 20%, and 37%. Conclusion: The somewhat lower prevalence of OUD in comparison to national estimates suggests potential under-diagnosis. Treatment was low across all health systems but varied greatly. Methadone maintenance treatment was not captured. More efforts are needed to diagnose and treat OUD in the PC setting.

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First Name: Denise

Last Name: Boudreau

Degrees: MA MD Ph.D etc:: PhD, MS, RPh

Company Affiliation: Kaiser Permanente Washington Health Research Institute

ID: 536
Examining the relationship of disordered eating and substance use among adolescent females

Alia Rowe, Indiana University Purdue University Indianapolis

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Ethnic Differences

Abstract: AIM Disordered eating and substance use are common problematic behaviors among adolescents. Previous research has found that among female adolescents there is an increasing probability of co-occurring disordered eating and substance use behavior. However, to date findings are inconclusive on the temporal ordering of these behaviors. Further, limited research has been conducted to explore whether the co-occurrence of disordered eating and substance use or the temporal ordering of the two behaviors exist similarly across racial/ethnic groups. METHODS The present study used a cross-lagged panel design across one year to examine the temporal ordering between disordered eating and substance use among a sample of 2,557 mid-western adolescent females (mean grade = 6.3) who self-identify as either non-Hispanic Black (n=582) or non-Hispanic White (n=1975). Models were run separately by race. RESULTS Results indicated that for White youth disordered eating and substance use were significantly correlated. Moreover, disorder eating predicted later substance use (B =0.07, pB =0.03, p=.17). For Black youth, null effects were found for each aim, with a non-significant bivariate correlation found between the two outcome variables, as well as a non-significant temporal effect of each behavior predicting the other over a one year time period. CONCLUSION These findings suggest that the co-occurrence of disordered eating and substance use may be more pertinent for White females than Black females. Moreover, intervention efforts geared towards White youth may best be tailored to addressing disordered eating in order to offset later substance use. Further research is need to better understand the co-occurrence of disordered eating and substance use among other racial/ethnic groups. Moreover, future studies are warranted to examine if there are critical periods in which the temporal effect of disordered eating on substance use occurs.

Financial Support: none

First Name: Alia

Last Name: Rowe

Degrees: MA MD Ph.D etc:: BA

Company Affiliation: Indiana University Purdue University Indianapolis

ID: 538
Effect of a behavioral activation treatment on reductions in HIV sexual transmission risk behavior from pretreatment to a 1-year follow up

Stacey Daughters, University of North Carolina at Chapel Hill

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Treatment

Abstract: Aim: Prior research has demonstrated reductions in HIV sexual transmission risk behavior following engagement in a behavioral intervention that integrates sexual risk reduction and behavioral activation. However, it is unknown whether behavioral activation alone, with its focus on increasing healthy, pleasurable activities is associated with decreases in HIV sexual transmission risk behavior. Further, this question has not been tested using a randomized clinical trial design with a contact time matched control condition and longitudinal follow up period. We hypothesized that BA would be associated with greater reductions in HIV sexual transmission risk behaviors compared to a contact time matched control condition that did not aim to increase positive reinforcement. Methods: Individuals seeking urban residential substance use treatment (N=263) [M age 42.7; 29.3% female; 94.7% African American] were randomized to receive either a group-based, brief behavioral activation treatment (LETS ACT) or time-matched control condition. HIV sexual transmission risk behavior was assessed at 5 timepoints from pretreatment to 1-year post treatment with the HIV Risk-Taking Behavior Scale (HRBS). Results: Linear mixed models indicate a significant time by condition effect on HIV sexual transmission risk behavior (B=0.14, SE=0.07, 95% CI= .01, .27) from pre-treatment through 1-year post-treatment. Post hoc comparisons indicate that participants in the LETS ACT condition reported a significant decrease (B=-0.06, SE=0.03, 95%CI: -.13, -.02) over time, which was not observed among participants in the control condition (B=-0.04, SE=0.03, 95%CI: -.12, .03). Conclusion: A behavioral activation treatment for substance use (LETS ACT) appears to be more effective at reducing HIV sexual transmission risk behaviors compared to a supportive counseling control condition for low income predominantly African American substance users in an urban residential treatment setting.

Financial Support: National Institute on Drug Abuse. Grant Number: R01 DA026424

First Name: Stacey

Last Name: Daughters

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: University of North Carolina at Chapel Hill

Contact Title: Assistant Professor

ID: 539
Stimulant prescription drug misuse types, motives and use disorder symptoms among U.S. young adults

Christian Teter, Psychopharmacology Consultant

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Stimulants

Topic: Epidemiology

Abstract: Aim: This study examined past-year stimulant prescription drug misuse (PDM), stimulant PDM types, stimulant PDM motives, and prescription stimulant use disorder (PSUD) symptoms among U.S. young adults. Methods: Data were collected from a national sample of 14,533 young adults aged 18-25 years in the 2015 National Survey on Drug Use and Health (NSDUH). Stimulant PDM types (i.e., medical misuse, nonmedical misuse, or mixed misuse) were created from multiple stimulant PDM items concerning prescription stimulant use in a manner not as directed by a doctor. Based upon prior research, stimulant PDM motive categories (i.e., performance enhancement, recreational, or combined) were created by the investigators using individual stimulant PDM motives (e.g., “to study”, “get high”), contained in the NSDUH. PSUD symptoms were determined using Diagnostic and Statistical Manual of Mental Disorders criteria. Results: Past-year stimulant PDM was driven nearly exclusively by amphetamine (n= 947) and methylphenidate (n= 72) pharmacologic classes, and no stimulant PDM differences were identified between amphetamine and methylphenidate classes based upon school enrollment. Stimulant PDM motive categories were significantly associated with stimulant PDM type and PSUD symptoms. A significantly greater proportion of the mixed misuse group reported both performance enhancement and recreational stimulant PDM motives (combined motives= 42.2%) compared to medical misuse (9.5%) and nonmedical misuse (13.9%) groups. The mean number of stimulant PDM motives increased in a stepwise manner from medical misuse (M = 1.58 motives), to nonmedical misuse (M = 1.85 motives), to mixed misuse (M = 2.63 motives; $p < 0.001$). Respondents who endorsed at least one PSUD symptom demonstrated a significantly greater number of stimulant PDM motives ($p < 0.01$). Conclusion: These findings indicate that stimulant PDM motives are associated with stimulant PDM types and increased rates of PSUD symptoms. These findings can help guide screening, assessment, pharmacotherapy and monitoring to reduce stimulant PDM among young adults.

Financial Support: Supported by research grants R01DA043961 and R01DA031160.

First Name: Christian

Last Name: Teter

Degrees: MA MD Ph.D etc:: Pharm.D., BCPP

Company Affiliation: Psychopharmacology Consultant

ID: 540
The impact of sex and exercise on methamphetamine preference in a rat animal model

Mari Purpura, University of California Santa Barbara

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Stimulants

Topic: Sex Differences

Abstract: AIM Methamphetamine (METH) abuse remains an extremely serious problem in the United States. Currently, there is limited information on the individual differences in vulnerability to substance use disorder (SUD). A central feature of SUDs is the the propensity to forgo normally rewarding activities in order to take the abused substance. Here, we explore the impact of subject sex, parameters of METH reinforcement, and opportunity for exercise to the propensity to select METH reinforcement over an alternative reinforcer using an animal model METHODS To explore factors contributing to selection of METH over a competing reinforcer, we employed rats that were allowed to choice between intravenous METH reinforcement and food reinforcement (45 mg pellets). Specifically, we assessed METH choice as a function of sex, METH dose (0.05 and 0.1 mg/kg/inf IV), inter-trial interval (ITI; either 20 or 600 s) and the effects of daily exercise (6h access to running wheel) . RESULTS There was a significant interaction between sex and dose [F,(1,45)=5.765, p=0.021] with the highest levels of METH choice being exhibited by females tested 0.1 mg/kg/inf METH on a 20s ITI schedule. Additionally, in females initially exhibiting a METH preference, the opportunity to exercise also decreased METH choice [F(1,11)=5.133, p=0.045] CONCLUSIONGenerally, the results of this study are consistent with the growing body of clinical and preclinical evidence demonstrating that females exhibit higher vulnerability for stimulant abuse. Further, engagement in voluntary exercise decreased selection of METH in an initially METH preferring subgroup.

Financial Support: N/A

First Name: Mari

Last Name: Purpura

Company Affiliation: University of California Santa Barbara

ID: 541
Social capital predicts cigarette smoking in majority white counties, but not counties that are majority African American, Latina/o, or American Indian/Alaska native

Nathan Smith, University of Florida

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Ethnic Differences

Abstract: Aim: Tobacco smoking is the leading cause of preventable death in the US. While nationwide smoking rates are declining, there is considerable variation across US counties. Counties with large numbers of racial and ethnic minorities have particularly high smoking rates. Social Capital, a broad measure of social connectedness, is consistently associated with better county-level health outcomes including tobacco smoking. However, little is known about how county-level Social Capital impacts smoking in counties that are majority non-White. Methods: Social Capital data were combined with information from the 2016 Behavioral Risk Factors Surveillance System to produce data for each US county (n=3,136). To examine the relationship between social capital and tobacco smoking rates, we conducted bivariate and multivariate logistic regression analyses for each of the following six samples of US counties: (1) all US counties (ALL), and counties that were >60% (2) non-Latina/o White (NLW), (3) African-American (AA), (4) American Indian/Alaska Native (AI/AN), (5) Latina/o, and (6) no majority race (Other). Multivariate models adjusted for other potentially influential variables of tobacco smoking including median income, child poverty, high school graduation, population over age 65, percentage rural, one parent households, and income inequality. Results: In both bivariate and multivariate regression models there was a significant negative relationship between Social Capital and smoking rates for the ALL and NLW groups, but not for the AA, AI/AN, Latina/o, or Other groups. Conclusions: The relationship between county-level Social Capital and smoking rates in the US may be driven by counties that are more than 60% White. New ecological measures of Social Capital are necessary to understand how Social Capital impacts health outcomes in majority non-White contexts.

Financial Support: This research was supported by the NIDA T32 training grant at the UF Substance Abuse Training Center in Public Health from the National Institutes of Health (T32DA035167). The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health."

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ID: 542
Analyzing the initiation of marijuana use in adulthood

Shawnta Lloyd, University of Florida, College of Public Health and Health Professions

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Epidemiology

Abstract: Aims: The aim of this analysis is to identify the demographic and health characteristics that predict the initiation of marijuana in adulthood among those that report lifetime marijuana use. Methods: Data was analyzed from the 2014 National Survey on Drug Use and Health (NSDUH). A sample of 3,599 adults, 50 years old or above, who have used marijuana was included in the analyses. The initiation of marijuana use was categorized as childhood to young adulthood (≤25 years old) and adulthood (>25 years old). Chi-square tests and logistic regression were used to assess the association of demographics, substance use, and health status with the initiation age of marijuana use. All analyses were completed in SAS 9.4. Results: In the sample, 46.6% were female and 79.3% were White. Approximately 11.3% of adults initiated marijuana use during adulthood. Females, unemployed persons, and those with less than a high school education were more likely to initiate marijuana use in adulthood. Current users of marijuana and other illicit drugs were less likely to initiate marijuana use in adulthood. Conclusions: Demographic factors and substance use differ based on the age of initiation of marijuana use. Due to dissimilar motivations and marijuana associated outcomes at different ages of initiation, altered interventions are needed for older marijuana users.

Financial Support: Financial Support: This research was supported by the NIDA T32 training grant at the UF Substance Abuse Training Center in Public Health from the National Institutes of Health (T32DA035167). The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

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ID: 543
California tobacco tax increase: Impact on a low-income drug treatment sample

Denise Williams, University of California San Francisco

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Behavior

Abstract: AIM:Tobacco use disproportionately affects low-income individuals and those with substance use disorders (SUDs). Increased taxation on tobacco products has been effective to reduce smoking in the general population. Limited research has been done examining the impacts of tobacco tax increase within high-risk populations. This study assessed smokers' knowledge of the California Tobacco Tax Increase (Proposition 56) from $0.87 to $2.87, and examined the impact of the tax increase on use of tobacco products among individuals in SUD treatment. METHODS: We surveyed 143 clients (pre-tax) and 153 clients (post-tax) at three residential SUD treatment facilities in San Francisco, California. All participants were current smokers. We conducted onsite surveys before (March 2017) and after (July 2017) the tobacco tax increase went into effect. We also compared pre- and post-tax samples on smoking measures (smoking prevalence, cigarettes per day [CPD], and past year-quit attempts). RESULTS: Post-tax, 65% (N=89) reported paying $9 or more for a pack of cigarettes compared to 9% (N=12) pre-tax (p CONCLUSION: Clients in SUD treatment were unaware of the tax on tobacco products but reported paying more for a pack of cigarettes. We did not observe a difference in smoking prevalence, CPD, or quit attempts. This suggests that the tobacco tax increase did not have an impact on our sample. Further research is necessary to determine if tobacco taxation is effective to reduce smoking among low-income and SUD populations.

Financial Support: TRDRP 25CP-0002 and NCI Cancer Center Support Grant P30 CA082103.

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ID: 544
Patterns of adverse childhood experiences, impulsivity and problematic substance use in young adulthood

Sunny Shin, Virginia Commonwealth University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Behavior

Abstract: AIM Adverse childhood experiences (ACEs), such as child maltreatment and household dysfunction, have been linked to substance use in young adulthood. Few studies have examined the pathways linking ACEs to substance use, and even fewer studies have used patterns of ACEs in exploring the pathways from ACEs to substance use. The current study examined if individual differences in impulsivity are a critical factor that mediates the association between patterns of ACEs and substance use. METHODS Using a community sample of young adults (N=335; ages 18-25), latent class analyses (LCA) were conducted to identify homogenous groups of young people with similar patterns of ACEs. Exposure to ACEs included 12 childhood adversities, such as child abuse, neglect, and family-focused adversities. Multiple structural equation models (SEM) were used to specify the roles of four related, but different impulsivities (i.e., negative urgency, premeditation, perseverance, sensation seeking) in linking ACEs patterns to problematic substance use, including drug dependence symptoms, alcohol-related problems, and tobacco use. RESULTS LCA identified four classes of ACEs: Low ACEs, Household Dysfunction/Community Violence, Emotional ACEs, and High Multiple ACEs. The final SEM analyses fit the data well (CFI > .95; RMSEA ≤ .04). SEM analyses indicated indirect effects for the High Multiple ACEs class through pathways to negative urgency on drug dependence symptoms, alcohol-related problems, and current tobacco use, respectively. In a SEM analysis for lack of perseverance, the paths from ACEs to lack of perseverance to problematic substance use were also statistically significant only for the High Multiple ACEs class. CONCLUSION We found that negative urgency and lack of perseverance played a significant role in linking ACEs to problematic substance use among a poly-victimized class. The results of this research suggest that personality traits of impulsivity would be potentially useful targets to prevent problematic substance use among young people who have exposure to multiple ACEs.

Financial Support: This research was supported by NIDA (DA030884) and the AMBRF/The Foundation for Alcohol Research to Sunny Shin (PI).

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ID: 545
Patterns and frequency of current e-cigarette use in U.S. adults, 2012-2013

Maria Parker, University of Vermont

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Epidemiology

Abstract: Aim: In the United States (U.S.), the prevalence of electronic cigarette (e-cig) use has increased since 2010. Few studies, however, have addressed frequency of use. This study aims to examine patterns and correlates of e-cig use frequency in a novel national sample. Methods: We analyzed data from 36,216 U.S. adults interviewed between 2012-13 from the National Epidemiologic Survey on Alcohol and Related Conditions III (NESARC-III). Demographic characteristics, other tobacco/drug use, and psychiatric disorders were compared by e-cig use status (i.e., current (past-month), past (ever), never) and frequency of e-cigarette use (i.e., infrequent (≤3 days/month), moderate (1-6 days/week), daily). Multinomial logistic regression models compared the general population by e-cig use status and e-cig users by frequency of use. Results: Current e-cig use was low in adults (1.8%). Past e-cig use was slightly higher (3.5%). Among current e-cig users, 44.2% were infrequent users, 31.4% were moderate users, and 24.4% were daily users. There were no differences in demographic or other characteristics between current and past e-cig users or infrequent and moderate e-cig users (p's>0.05). Compared to infrequent e-cig users, daily e-cig users were more likely to be male and older (35+), past cigarette smokers, and past alcohol drinkers (p's < 0 .05). Compared to daily e-cig users, moderate e-cig users were more likely be female, current cannabis users and cigarette smokers, and fall into the 25-34 age group (p's < 0 .05). Conclusion: These findings suggest that most current e-cig users are infrequent users, whereas moderate users are more likely to be using cigarettes and cannabis, and daily users tend to be non-smokers. Future research examining patterns of e-cig use may aid our understanding of how e-cigs might be associated with use of combustible tobacco and other drugs.

Financial Support: Supported by NIH/FDA P50DA036114

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ID: 546
Effects of smoked cannabidiol on cardiovascular, subjective and reinforcing effects of smoked THC

Leslie Lundahl, Wayne State University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Drug Interactions

Abstract: Background/Aim Currently there is no FDA-approved medication for cannabis use disorder (CUD). Cannabidiol (CBD) is a phytocannabinoid that has been shown to attenuate some effects of THC. However, most CBD studies have used a single dose or oral administration, in combination with oral THC or smoked cannabis. Presently, there are no controlled studies on the effects of different smoked CBD doses on physiological and subjective responses to smoked THC. This ongoing pilot study is examining dose-related effects of smoked CBD in combination with smoked cannabis (THC). We hypothesize CBD will dose-dependently attenuate physiological (heart rate, blood pressure), subjective, and reinforcing effects of smoked THC in individuals with CUD. Methods This placebo-controlled, within-subject, randomized crossover study includes 3 outpatient sessions. Participants smoke one marijuana cigarette containing CBD (0%, 3.4%, 12.7%) without THC, and 5-min later smoke a second cigarette containing 5.7% THC without CBD. Heart rate (HR), blood pressure (BP), and subjective drug effect and mood ratings are collected -15, 15-, 30-, 45-, 75-, 105-, 140- and 170-min post-CBD. Peak effects are calculated from values through 45-min post-CBD. A puff/money choice procedure is being used to assess THC reinforcing efficacy. Plasma concentrations will be analyzed (data not yet available). Results Preliminary analyses (n=7 to date) indicate both active CBD doses attenuate THC-related increases in HR (partial h2 = .36) and diastolic BP (partial h2 = .37), relative to placebo CBD. CBD is not significantly altering subjective (e.g. “Good Drug Effect”, “High”) or reinforcing effects, despite trends toward dose-dependent potentiation of these effects relative to placebo. Conclusion Potential CBD suppression of THC-induced cardiovascular responses indicates CBD is safe in combination with THC. Lack of attenuation of positive subjective responses to THC is consistent with previous research and, if confirmed in the full sample, would not support use of CBD for CUD.

Financial Support: Department of Psychiatry and Behavioral Neurosciences, WSU School of Medicine; Lycaki/Young Funds (State of Michigan)

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Last Name: Lundahl

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Wayne State University

Contact Title: Assistant Professor

ID: 547
Larger volume in reward-related temporal lobe regions is associated with impulsivity and craving in cigarette smokers

Yasmin Mashhoon, McLean Hospital, Harvard Medical School

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Imaging

Abstract: Aim: Neuromaturational pruning and myelination of limbic and striatal temporal regions during late adolescence is critical for shaping motivational reward processing in adulthood. Initiation of cigarette smoking behaviors that temporally correspond with this pattern of maturation may influence subcortical temporal pruning and myelination. The current objective was to determine the impact of persistent smoking exposure on the volume of limbic and striatal regions involved in regulating drug use reward, impulsivity, and craving in adult smokers who initiated habitual smoking during late adolescence. Methods: Four healthy non-smokers (aged 30.5 ± 7.0; 0 females) and seven nicotine-dependent cigarette smokers (aged 30.0 ± 4.4; 5 females; age of smoking onset 17.7 ± 2.9; current cigarettes/day 16.0 ± 7.7; no history of Axis I diagnoses or drug/alcohol dependence), who were nicotine deprived underwent high-resolution 3T MRI. Subcortical structure volumes (referenced to intracranial volume) were processed and analyzed using Freesurfer pipeline protocols. The Barratt Impulsiveness Scale and Questionnaire on Smoking Urges were used to assess self-reported impulsivity and smoking craving. Results: Preliminary analyses revealed larger volumes in smokers, relative to non-smokers, in bilateral putamen ($p \leq 0.05$), hippocampus ($p \leq 0.05$) and accumbens ($p \leq 0.04$), as well as right hemisphere (RH) amygdala ($p \leq 0.05$). Greater total impulsivity was associated with larger volumes in bilateral putamen ($p \leq 0.05$) and hippocampus ($p \leq 0.05$), left hemisphere (LH) accumbens ($p \leq 0.05$) and RH amygdala ($p \leq 0.02$). Furthermore, greater cigarette craving was correlated with larger volumes in bilateral putamen ($p \leq 0.05$) and RH amygdala ($p \leq 0.01$) and accumbens ($p \leq 0.05$). Discussion: While the sample size is small, limbic and striatal subcortical regions in adult smokers were significantly larger, consistent with excess immature neurons, relative to non-smokers. One interpretation is that late adolescent smoking overlapped, and possibly interfered, with pruning of subcortical regions involved in controlling drug reward processing and craving. As such, these immature regions likely continue to reinforce compulsive habitual nicotine use behaviors into adulthood.

Financial Support: K01DA034028 (YM)

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Degrees: MA MD Ph.D etc:: Ph.D.

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ID: 548
Current depressive symptoms are associated with drug craving and drug use in methadone-maintained patients

Andrew Huhn, Johns Hopkins University School of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: AIM: Depressive symptoms in methadone-maintained patients (MMPs) may contribute to drug craving and subsequent drug use. The current study recruited MMPs in early or long-term recovery. We hypothesized that patients in early recovery would endorse more illicit drug use compared to patients in long-term recovery, and that depressive symptoms would be associated with drug craving and illicit drug use in both groups. METHODS: Participants were part of a neuroimaging study and included MMPs in early (1-4 months; n=20) or long-term (9-18 months; n=10) recovery. Patients provided information regarding past 30-day and lifetime drug use, and completed a past 7-day Cue-induced Opioid Craving visual analog scale (VAS, 0-100), and the 17-item Hamilton Depression Rating Scale (HAM-D). RESULTS: On average, MMPs had mild depressive symptoms measured by the HAM-D (M=9.9, SD=8.7), but 23% reported a severe level of depressive symptoms. No between-group differences were found. Higher HAM-D total score was associated with higher VAS ratings of Cue-induced Opioid Craving ($R2 = 0.21$, $p=0.01$). MMPs in early recovery endorsed significantly greater opioid craving (M=40.8, SD=35.1) compared to patients in long-term recovery (M=15.0, SD=22.2; $t(28)=2.44$; $p=0.02$). Early recovery MMPs endorsed more days in last 30 using heroin (M=4.4, SD=8.0 vs. M=0.3, SD=0.9; $t(28)=2.22$, $p=0.04$), cocaine (M=8.2, SD=11.3 vs. M=0.1, SD=0.3; $t(28)=3.20$, $p=0.005$), and marijuana (M=4.5, SD=9.5 vs. M=0, SD=0; $t(28)=2.11$, $p=0.048$) relative to long-term recovery MMPs. Higher HAM-D total scores were associated with past 30-day marijuana use ($R2 = 0.25$, $p=0.005$) but not cocaine use ($R2 = 0.07$, $p=0.15$), while higher opioid craving ratings was associated with past 30-day heroin use ($R2 = 0.19$, $p=0.02$). CONCLUSION: Depressive symptoms in MMPs were associated with increased opioid craving and past 30-day marijuana use, suggesting elevated depressive symptoms may be risk factors for relapse in recovery from OUD. Further analyses will examine these results in relation to neural activity in the prefrontal cortex.

Financial Support: R01DA035246 (Dunn)

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Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Johns Hopkins University School of Medicine

ID: 549
Relationship of trait anger among smokers with SUD to nicotine dependence, barriers to quitting smoking, intolerance for discomfort, smoking, craving and compliance with smoking cessation medication

Damaris Rohsenow, Brown University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Treatment

Abstract: Aim: Smokers with substance use disorders (SUD) have great difficulty quitting smoking during their first year of sobriety. Varenicline (VAR) improved outcomes when compared to nicotine replacement, but compliance was low. Trait aggression was investigated as a correlate of compliance, smoking, and various barriers to smoking cessation. Methods: Smokers abstinent from substances < 12 months (n = 137) were randomized to 12 weeks VAR (after 1-wk dose run-up) vs. nicotine patch, double-placebo, plus brief advice. Trait aggression (abbreviated Aggression Questionnaire (AQ-R); Bryant and Smith, 2001, with four subscales) was correlated with baseline measures of barriers (Barriers to Change importance rating, Tolerance for Smoking Discomfort: Withdrawal Intolerance scale), dependence, cigarettes/day. AQ-R was then used to predict medication compliance (percent of capsules taken), smoking, and smoking urges after 1 full week on VAR or patch. Results: The Anger (but not Aggression or Hostility) subscale correlated with nicotine dependence ($r = .17$, $p < .03$); the AQ-R was not correlated with cigarettes per day. The Anger scale correlated with Barriers to Change ($r = .17$, $p < .03$) and Withdrawal Intolerance ($r = .21$, $p < .007$). Withdrawal Intolerance also correlated with Hostility ($r = .36$, $p < .001$) and Verbal Aggression ($r = .15$, $p < .05$). No AQ-R scale correlated with urge to smoke, medication compliance, or cigarettes per day after one week on medication. Conclusions: While higher trait anger is associated with greater nicotine dependence, the importance of various barriers to smoking cessation, and intolerance of withdrawal, trait anger did not predict short term medication compliance or smoking reductions early in medication treatment for smokers with SUD.

Financial Support: This research was supported by a grant from the National Institute on Drug Abuse (R01DA024652), and a Senior Research Career Scientist Award from the Department of Veterans Affairs

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Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Brown University

Contact Title: Professor (Research)

ID: 550
A urinalysis-based study of the prevalence of fentanyl use among opioid users in New York City

Suky Martinez, Columbia University and NYSPI

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Other

Abstract: Aim: A dramatic increase in opioid-related overdose deaths occurred in the U.S. in 2016. This disturbing trend may be due in part to the increased prevalence of illicitly manufactured fentanyl, a synthetic opioid 50–100 times more potent than morphine. This investigation sought to examine the prevalence of fentanyl use among illicit opioid users in New York City using urine toxicology (Utox) screening. Methods: This secondary data analysis utilized data collected as a part of several clinical laboratory studies over the course of one year of observation. In general, these studies sought to recruit nonmedical opioids users, not currently in treatment for a substance use disorder. Potential study participants were scheduled for in-person screenings that included an Alltest North-American 11-panel drug urine test along with an individual test for fentanyl. As a part of our research efforts, participants are also followed for one year, to observe for changes in their patterns of drug use and the occurrence of overdose events. Results: Between August 2016 and September 2017, 554 urine samples from 297 participants were obtained and assessed. Overall, 16.9% of individuals provided at least one fentanyl-positive urine sample, and fentanyl was detected in 15.9% of all the samples collected. Over the course of the year of observation, the percentage of fentanyl-positive samples increased 41.2% from the first to the last month of sample collection. Moreover, we observed a near doubling of reported overdoses compared to previous years. Conclusion: The present study replicates national data demonstrating the growing nonmedical use of fentanyl. Because drug users are often unaware of the contents of street heroin, future research should seek to understand whether fentanyl use in this population is intentional or unintentional. Providing a better understanding of the deliberateness of the use of this dangerous drug will be an important contribution to efforts to combat opioid overdose.

Financial Support: This study was supported by NIDA grant R01DA016759 to Dr. Sandra Comer.

First Name: Suky

Last Name: Martinez

Degrees: MA MD Ph.D etc:: BA

Company Affiliation: Columbia University and NYSPI

ID: 551
"Some hang themselves because the arosta is one thing that is unbearable": Experience of withdrawal among South Africans who use whoonga and its implications for intervention development

Griffin Tyree, University of California San Diego

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Behavior

Abstract: Aims: Whoonga is a heroin-based street drug in South Africa rumored to be mixed with rat poison and HIV antiretroviral medication. It is one of multiple emerging heroin epidemics in Africa. Interestingly, heroin users in Kenya, Tanzania, and South Africa all refer to a withdrawal-craving syndrome called arosta (or arosto). This qualitative study is the first to examine experiences of arosta among whoonga users and arosta's relevance to intervention development. Methods: Thirty whoonga users undergoing residential addiction treatment participated in semi-structured interviews about their experiences with the drug. As there were no inpatient treatment options for women in Durban, all participants were male. Interview data was coded using qualitative content analysis. Results: Participants had a mean age (standard deviation) of 26.9 (7.0) years. Most identified as Black (66%; 23% Indian; 10% Mixed Race/Ethnicity). In our sample, descriptions of arosta were largely consistent with opioid withdrawal. Stomach cramps, pain, and aggression figured prominently. Participants attributed symptoms to heroin or whoonga's other ingredients. They expressed a fear of death from arosta. "Literally it would force" participants to smoke again, to steal, or to become violent. Participants understood arosta to result from "whoonga… coming out of your system." They viewed methadone as a means of "eliminating arosta," but expressed concern about getting sick from methadone withdrawal because it is "a drug in its own right" and not always accessible. Conclusions: Although withdrawal symptoms were largely consistent with opioid withdrawal, local notions of arosta regarding agency and causation influenced both drug- and treatment-seeking behavior. The aversive experience of arosta tainted attitudes toward methadone maintenance therapy – a potentially useful tool to address whoonga addiction. Programs targeting this emerging heroin epidemic in South Africa – as well as those in Kenya and Tanzania – ought to account for such distinctive elements of arosta.

Financial Support: NIDA 1 R21 DA039857-01 (Grelotti, PI); NIH/NIAID 5 P30 AI060354-10 (Walker PI)

First Name: Griffin

Last Name: Tyree

Company Affiliation: University of California San Diego

ID: 552
Delay discounting and sequential decision making across the alcohol use and recovery spectrum

Lara Moody, Virginia Tech Carilion Research Institute

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Alcohol

Topic: Behavior

Abstract: Aim: Several dominant conceptualizations of addiction, including dual decision models, theorize changes in relative executive control leading to suboptimal decision-making during addiction. Here, past alcohol users, current alcohol users, and non-alcohol users were compared on two decision-making tasks to evaluate the hypothesis that the recovery process is associated with a repair of dysregulated decision-systems resulting in less discounting and more model-based strategies than current alcohol users. Methods: Participants were recruited from Amazon's Mechanical Turk and from the International Quit and Recovery Registry. Participants included 80 individuals with Alcohol Use Disorder Identification Test (AUDIT) scores indicative of hazardous or harmful drinking (total score > 8) and 90 individuals with AUDIT scores below this cutoff and 16 participants in recovery. Participants completed a 7-delay discounting task and a 2-step sequential decision making task. The hBayesDM package was used to perform hierarchical Bayesian modeling of delay discounting and sequential decision making. The rate of delay discounting, k, and the relative influence of model-free and model-based choices, w, were compared between groups. Results: Highest density intervals of the differences in the posterior distributions were not credible between groups using either the delay discounting and sequential decision making tasks. The median rate of discounting for the three groups was ln(k) = -0.92. -2.35, -4.82, for past, current, and non-problematic alcohol users, respectively. In the sequential decision making task, the relative model-free and model-based decision strategies were w = 0.39, 0.05, 0.23 for past, current, and non-problematic alcohol users, respectively. Conclusion: While the current sample does not indicate credible differences between groups, the direction of several of the parameters are consistent with our hypothesis. As expected, people in recovery used the most model-based strategies and current alcohol users used the most model-free strategies in the sequential decision making task. However, unexpectedly, people in recovery showed the

Financial Support: R01AA021529 and F31AA024368

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Last Name: Moody

Degrees: MA MD Ph.D etc:: M.S.

Company Affiliation: Virginia Tech Carilion Research Institute

ID: 553
Childhood trauma matters for addiction, STI/HIV, and criminal justice: Where do we go from here?

Joy Scheidell, New York University School of Medicine

Abstract Category: Theoretical/Commentary

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Epidemiology

Abstract: Aim To summarize key themes emerging from a body of research focused on evaluating childhood trauma as an underlying determinant of the coinciding epidemics of STI/HIV risk and criminal justice involvement in the US. Methods Using data from Waves I (11-21 years), III (18-26 years) and IV (24-32 years) of the National Longitudinal Study of Adolescent to Adult Health (n=12,288), we have evaluated exposure to nine traumas before age 18 – neglect, emotional, physical, and sexual abuse by a parent or adult caregiver; parental incarceration; parental binge drinking; and having ever witnessed, experienced, or been threatened with violence – and associations with STI/HIV-related substance use and sexual risk, infection, and criminal justice involvement through adolescence, and into adulthood. We also have examined mediators of relationships. Results Trauma is pervasive, with half the US population experiencing at least one type of trauma, and certain groups hit harder with particular traumas (e.g., sexual abuse among women, physical abuse and violence among Asian Americans, parental incarceration among non-whites). While commonly-studied traumas such as sexual and physical abuse and neglect clearly are drivers of risk, a broad range of traumas matter: abuse (physical, sexual, emotional), neglect, household dysfunction indicators (parental incarceration, parental binge drinking), and violence exposures are independent risk factors for addictions, STI/HIV, and CJI risk across the life-course. Trauma impacts STI/HIV risk and CJI largely by increasing delinquent/antisocial tendencies versus by increasing depression and anxiety. Effects matter most for adolescent health and lessen somewhat into adulthood, showing the resiliency in the face of trauma, though weak to modest effects on STI/HIV and criminal justice outcomes remain into the young adult life-course. Conclusions Trauma screening should be performed at the population level in childhood and adulthood. Intervening early can prevent a trajectory that leads to conduct disorder and in turn drug use, STI/HIV, and incarceration.

Financial Support: The National Institute on Drug Abuse grant ‘Longitudinal Study of Trauma, HIV Risk, and Criminal Justice Involvement’ (Principle Investigator: M.R.K.; R01DA036414).

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Last Name: Scheidell

Degrees: MA MD Ph.D etc:: MPH

Company Affiliation: New York University School of Medicine

ID: 554
Assessment of the priming strength of opioids before and during chronic naltrexone treatment in squirrel monkeys

Sarah Withey, McLean Hospital, Harvard Medical School

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Opiates/Opioids

Topic: Behavior

Abstract: Aim: Opioid addiction is characterized as a chronic relapsing disorder in which renewed drug-seeking behavior during abstinence can be provoked by exposure to an opioid or opioid-associated cue. In laboratory subjects, drug-seeking behavior similarly can be reinstated by priming with the drug or drug-related stimuli. Naltrexone, a μ-opioid receptor antagonist, is used in the treatment of opioid addiction, however its ability to reduce reinstatement behavior in laboratory subjects is not well understood. Here we investigate changes in priming strength of opioid agonists during naltrexone (0.2mg/kg/day) treatment. Methods: Squirrel monkeys (n=4) were trained to self-administer i.v oxycodone. Full dose effect (D-E) functions for the priming strength of different opioids (i.e. number of injections self-administered when only vehicle is available) were determined before (baseline) and during chronic naltrexone treatment. Results: At baseline, a pre-session priming injection of either full opioid agonists (oxycodone, heroin and methadone) or partial agonists (buprenorphine, butorphanol and nalbuphine) reinstated drug-seeking behavior in a dose-dependent manner. Externalized mini-pumps (iPrecio™) delivered naltrexone (0.2mg/kg/day) through a sub-cutaneous catheter and the priming strength of each opioid agonist was reassessed. Naltrexone produced a ten-fold rightward shift in the D-E function for oxycodone self-administration (peak number of injections self-administered at 0.01mg/kg/inj pre-chronic vs 0.1mg/kg/inj during chronic treatment). Preliminary data (n=2) suggests naltrexone produces rightward shifts in the D-E functions for reinstatement of drug seeking behavior following a priming injection with the full opioid agonists, oxycodone and heroin, and rightward and downward shifts in the D-E functions for partial opioid agonists, buprenorphine, nalbuphine and butorphanol. Methadone-induced reinstatement was variable between the subjects but preliminary data suggests a rightward shift in the D-E function. Conclusion: Reduction in the priming strength of opioid drugs (rightward and/or downward shift in D-E function) would represent a reduction in the ability of these drugs to provoke relapse in naltrexone-maintained individuals.

Financial Support: Supported by NIDA grant DA035857

First Name: Sarah

Last Name: Withey

Degrees: MA MD Ph.D etc:: Ph.D

Company Affiliation: McLean Hospital, Harvard Medical School

ID: 555
Receipt of medications for opioid use disorder after injection drug associated endocarditis or osteomyelitis

Simeon Kimmel, Boston University School of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: AIM: People who inject drugs are at risk for serious bacterial infections including endocarditis and osteomyelitis. These infections require weeks of intravenous antibiotic therapy, which is an opportunity to engage individuals in treatment with medications for opioid use disorder (MOUD). However, the rate and predictors of MOUD receipt following injection drug (IDU) associated serious infection are unknown. METHODS: We conducted a retrospective cohort study of Massachusetts residents ages 11-64 with a hospital encounter for IDU-associated endocarditis or osteomyelitis in 2012-2014. We used an individually linked state-maintained population registry that includes all payer medical claims, the prescription monitoring program, and substance use treatment. We used ICD-9 codes to identify individuals with endocarditis and osteomyelitis and code for opioid use disorder, injection drug use, or Hepatitis C in the preceding 12 months. We examined the number and proportion of individuals with IDU-associated endocarditis or osteomyelitis who received MOUD in each month for 12 months following the hospital encounter, defined as enrollment in methadone maintenance, receipt of buprenorphine, or naltrexone in each month following an index admission. RESULTS: We identified 539 individuals with IDU-related endocarditis or osteomyelitis. Over a 12 months follow up period, 227 (42%) patients received MOUD in one or more months: 105 (19%) received methadone for a median of 6 months [interquartile range (IQR 2-10)], 137 (25%) buprenorphine for a median of 4 months (IQR 2-8), 15 (3%) naltrexone for median of 1 month (IQR 1-2). 54% of individuals who received MOUD had received MOUD in the 12 months prior to the infection. 248 (46%) received one or more prescriptions for an opioid in the 12 months after the infection, more than received MOUD. CONCLUSION: A minority of individuals received MOUD following IDU-associated endocarditis or osteomyelitis. Efforts to understand barriers and improve receipt of MOUD following IDU-associated infections are needed.

Financial Support: Support from ASAM 2017 Fellowship Award, Fellow Immersion training Program in Addiction Medicine (R25DA013582) and Research in Addiction Medicine Scholars Program (R25DA033211).

First Name: Simeon

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Degrees: MA MD Ph.D etc:: MD, MA

Company Affiliation: Boston University School of Medicine

ID: 556
Community members are Interested in Deterra® drug deactivation pouches to dispose of unused medications

Linda Cottler, University of Florida

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Prevention

Abstract: Aim: This pilot study examined the feasibility of Deterra® Drug Deactivation Pouch distribution in a community setting and community interest in utilizing pouches to dispose of unused prescription opioid medications. Over 70% of medications prescribed go unused. Methods: In fall 2017, we attempted to distribute 100 Deterra® Drug Deactivation Pouches during a 3-day community event. We approached individuals attending the event, briefly described the current opioid epidemic and how disposal of unused prescription opioids could help. Next, we described use of the pouch and asked if they would be interested in receiving one for free. The number of pouches distributed, comments by community members, and experiences of the study team were recorded. Results: Three study team members approached 125 individuals/couples and distributed 100 pouches (80% acceptance rate) over a total of 3 hours. People who requested a pouch were thankful for the information and pouch and excited to use it when they returned home. Regarding prior disposal practices, nearly all who took the bag shared that they had medications at home because they didn't know how to appropriately dispose of them and several reported a history of disposing medications in the trash or flushing them down the toilet; a few reported disposing of medications at the pharmacy. Parents and caregivers of older adults – especially those whose parents who had recently passed away – expressed interest in using the pouch stating an unneeded surplus. Individuals who did not request a pouch shared that they did not use prescription medications and did not want to waste the pouch. Conclusion: Distribution of Deterra® Drug Deactivation Pouches is feasible. Overall, community members were receptive to the pouches and were excited about having a safe method to dispose of unused medications at home. Our next step is to test an intervention involving distribution and utilization of the pouch.

Financial Support: This research was supported by the NIDA T32 training grant at the UF Substance Abuse Training Center in Public Health from the National Institutes of Health (T32DA035167). Deterra® Drug Deactivation Pouches were provided by the Alachua County Health Promotion and Wellness Coalition. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health or the Alachua County Health Promotion and Wellness Coalition.

First Name: Linda

Last Name: Cottler

Degrees: MA MD Ph.D etc:: Ph.D., MPH

Company Affiliation: University of Florida

Contact Title: Associate Dean for Research and Planning

ID: 557
Cannabis use moderates associations between physical health and anxiety sensitivity and distress tolerance

Kate Stewart, Brown University School of Public Health

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Behavior

Abstract: AIM: To examine associations between physical health and anxiety sensitivity (the tendency to catastrophize and misinterpret anxiety-related interoceptive sensations) and distress tolerance (the perceived or actual ability to withstand psychological or physical distress) as a function of cannabis use frequency. METHODS: Data were collected in a study of Veterans (N = 361; mean age = 33.6) recruited from a Veterans Affairs hospital. Participants completed a Timeline Followback interview of past 6-month marijuana use (summed to create a frequency score), Anxiety Sensitivity Index, Distress Tolerance Scale and the physical health summary scale of the Short Form-36. RESULTS: Cannabis use frequency ($r = -.27$, $p = .002$) and anxiety sensitivity ($r = -.38$, $p < .001$) were associated with worse physical health. Distress tolerance was associated with better physical health ($r = .30$, $p < .001$). Multiple regression analyses controlling for age and number of years since the end of last deployment demonstrated that cannabis use frequency moderated the association between anxiety sensitivity and physical health ($\beta = -.13$, $p < .05$). Specifically, anxiety sensitivity was associated with worse physical health among cannabis users ($\beta = -.28$, $p = .004$), but not among non-users ($\beta = -.12$, $p = .14$). Cannabis use frequency also moderated the association between distress tolerance and physical health ($\beta = -.16$, $p < .02$), such that greater distress tolerance predicted better physical health among non-users ($N = 223$; $\beta = .27$, $p = .001$) but not among cannabis users ($\beta = .11$, $p = .27$). CONCLUSION: Among cannabis users, greater anxiety sensitivity, but not distress tolerance, predicts worse physical health. Future research should investigate whether cannabis use 1) exacerbates the health costs observed with higher anxiety sensitivity and 2) inhibits the health benefits observed with greater distress tolerance among participants in this study.

Financial Support: R01 DA033425 (PIs Metrik, Borsari)

First Name: Kate

Last Name: Stewart

Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: Brown University School of Public Health

ID: 558
Potential risks of cannabis vaping and edible use

Connor Jones, Arizona State University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Dependence

Abstract: AIM: Cannabis vaping and edible use are increasingly popular methods of cannabis consumption. These discreet methods of use could increase risk of cannabis-related problems by facilitating cannabis use in a wider range of settings compared with cannabis smoking. This study tested whether cannabis vaping and edible use were associated with increased risk of using cannabis outside of a private residence, driving while under the influence of cannabis, and a variety of cannabis-related problems. METHODS: Participants were 357 young-adult cannabis users recruited from a large university. Participants completed an anonymous online questionnaire on their past-year frequency of cannabis use, frequency of cannabis vaping and edible use, the places where they last vaped and used a cannabis edible, and their experience of cannabis-related problems in several domains, including driving while under the influence of cannabis. RESULTS: Fifty-two percent of participants had vaped cannabis in the past year and 62% had used a cannabis edible. Participants were more likely to have vaped cannabis or used an edible outside of a private residence than to have smoked cannabis outside of a private residence ($X2 = 9.47$, $p=.002$; $X2 = 12.4$, p
Financial Support: T32 DA039772 - Research Training in Drug Abuse/HIV Prevention at Arizona State University

First Name: Connor

Last Name: Jones

Degrees: MA MD Ph.D etc:: MA

Company Affiliation: Arizona State University

ID: 560
Implementation and feasibility of a public health led non-fatal overdose response system in New York City

Hillary Kunins, NYC Department of Health and Mental Hygiene

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Other

Abstract: Aim NYC drug overdose deaths increased by 45% between 2015 and 2016; 82% involved an opioid. Individuals who experience a nonfatal drug overdose are three times more likely to experience a subsequent fatal overdose than individuals without prior overdose. Providing a targeted intervention after a non-fatal overdose may reduce risk, but its feasibility is unknown. To address this gap, the NYC Department of Health and Mental Hygiene (DOHMH) initiated Relay, an emergency-department based non-fatal opioid overdose response system in June, 2017. Methods Partnering EDs activate Relay peer workers via NYC Poison Control Center for patients with suspected opioid overdose. Peers travel to EDs, 24/7, to offer in-person risk reduction counseling, overdose prevention training and naloxone, and service navigation. Peers follow up with assenting patients within 24-48 hours after discharge and up to 90 days post-discharge. At enrollment, patients complete an assessment with demographic characteristics and risk factors for overdose. Results Relay is currently operational in four NYC hospitals. To date, peers responded to 206 suspected overdose cases. Seventy-nine percent (n=162) were screened and eligible (opioid-related); 75% (n=122) agreed to participate. Participants were male (73%); Latino (52%), white (26%), or black (19%). A majority were older than 34 (69%). Thirty-nine percent reported a previous overdose. The most frequently reported risk factors were using alone (46%) or multiple substances (45%), and recent detoxification (17%). Fifty-five percent of participants were reached at 24-hours, and one-third were reached at 90 days. Peers have distributed 186 naloxone kits. Conclusion Early implementation indicates that a health department led non-fatal overdose program is feasible. EDs report overdoses to the health department and peer workers engage participants at high rates. A non-fatal overdose response system is a novel intervention to decrease risk of fatal overdose. Future evaluation will examine outcomes including mortality, linkage to addiction treatment, and recurrent emergency and hospital care.

Financial Support: NYC Department of Health and Mental Hygiene

First Name: Hillary

Last Name: Kunins

Degrees: MA MD Ph.D etc:: MD, MPH, MS

Company Affiliation: NYC Department of Health and Mental Hygiene

ID: 561
Tradipitant, an NK-1 antagonist, does not substantively modify opioid abuse liability or self-administration in opioid-experienced individuals

Sharon Walsh, University of Kentucky

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Mechanisms of Action

Abstract: AIM To explore the potential for a selective NK-1 antagonist, tradipitant, to attenuate the response to an opioid agonist (oxycodone) in humans who use opioids illicitly on an array of subjective, observer-rated, physiological and behavioral outcomes METHODS Participants with regular opioid misuse, but without opioid physical dependence, who were otherwise healthy were enrolled as inpatients for approximately 6 weeks. A within-subject, double-blind, crossover design was employed. The pharmacodynamic response to intranasal oxycodone (0, 15 & 30 mg/70kg) during maintenance on placebo and tradipitant (0 or 85 mg/BID; counterbalanced order) was evaluated. Additionally, intranasal oxycodone self-administration was assessed using a modified progressive ratio procedure with a concurrently available alternate reinforcer (money). RESULTS Tradipitant and oxycodone were safely tolerated in all participants. Oxycodone produced significant and dose-related increases on a broad array of prototypic opioid measures, including visual analog ratings of liking and high, street value estimates, work ratios completed for drug, expired CO2 concentrations and decreases in pupil diameter (p
Financial Support: National Institute on Drug Abuse R01 DA040637

First Name: Sharon

Last Name: Walsh

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: University of Kentucky

Contact Title: Professor of Behavioral Science

ID: 562
Gender differences in utilization of quitline services and tobacco cessation among callers at a state quitline

Alicia Allen, University of Arizona

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Treatment

Abstract: Aim: Smoking prevalence tends to be higher among men than women, though women experience greater smoking-related morbidity and mortality. While some research indicates that women have poorer cessation outcomes than men, less is known about gender differences in cessation within quitline settings. The aim of this study was to examine gender differences in smoking cessation among callers to the Arizona Smokers' Helpline (ASHLine) and explore the utilization of services (e.g., coaching sessions, use of pharmacotherapy) as a mediator in this relationship. Methods: Participants included callers enrolled in ASHLine between January 2011 and June 2016. At the seven-month follow-up, callers self-reported on current smoking status based on 30-day point prevalence. Individuals who completed the follow-up survey and provided gender information at baseline were included in the analyses (n = 16,345). ASHLine provides weekly coaching calls for up to three months and up to four weeks of nicotine replacement therapy. The association between gender and self-reported 30-day abstinence was tested using logistic regression models adjusting for baseline differences (e.g., age, quit confidence) and utilization of services. Results: Slightly more than half of the callers were women (55%). Women were older (52.3±13.4 vs. 50.4±14.0, $p < 0$ .01) and had slightly lower Fagerström scores (4.7±2.3 vs. 4.8±2.3, $p < 0$ .01) than men. Unadjusted analyses indicated that women had significantly lower odds of reporting smoking abstinence at month seven than men (OR=0.85, 95% CI=0.79-0.90). Results were slightly attenuated after adjusting for baseline differences (OR=0.90, 95% CI=0.83-0.98) and more substantially attenuated after adjusting for utilization of services (OR=0.96, 95% CI=0.87-1.05). Conclusions: Fewer female ASHLine callers reported smoking abstinence than men; however, women's lower utilization rates of quitline services may be driving this disparity. These findings may be used by quitlines to inform and develop gender-specific protocols to enhance quitting among female tobacco users.

Financial Support: This research was supported by Arizona Department of Health Services grants ADHS13-026130, ADHS11-007339, and HS160051-0/E1H37741 and the National Cancer Institute of the National Institutes of Health under award number P30 CA023074.

First Name: Alicia

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Degrees: MA MD Ph.D etc:: Ph.D., MPH

Company Affiliation: University of Arizona

ID: 563
The impact of abstinence on distress tolerance trajectories from pre- to 1-year post substance use treatment

Stacey Daughters, University of North Carolina at Chapel Hill

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Mechanisms of Action

Abstract: Aims: Distress tolerance (DT), defined as an individual's actual or perceived ability to withstand aversive affective states, is a risk factor for relapse to substance use and often a target of substance use treatment. The impact of abstinence on DT trajectories remains unknown. The aim of the current study was to (a) characterize trajectories of DT, and (b) assess the influence of abstinence duration and frequency of substance use as predictors of DT trajectories. Method: We utilized latent growth modeling to separately characterize the trajectory of perceived (Distress Tolerance Scale, DTS) and behavioral (Mirror Tracing Persistence Task, MTPT-C) DT among 263 alcohol and illicit substance users from pretreatment to 1-year post-treatment at 5 assessment time points. Abstinence duration and post treatment frequency of use were entered into conditional latent growth models as predictors of DT change over time. Results: Both perceived and behavioral DT exhibited positive, nonlinear change over time (slope bDTS = 0.31, SE = 0.07, pbMTPT-C = 0.81, SE = 0.22, pβ = .24; b = 0.006, SE = 0.003, pβ = .20, b = .02, SE = .01, p =.02) DT. Frequency of use was associated with attenuated behavioral (b = -1.12, SE = .47, pb = .03, SE = .22, p = .89) DT. Conclusions: The current study provides evidence for naturally occurring improvement in both perceived and behavioral DT over a 1-year period following entry to residential substance use treatment. Such findings provide support for the conceptualization of DT as a malleable, treatment target and emphasize the importance of abstinence in DT improvement and substance use recovery.

Financial Support: R01 DA026424. Trial Registration at Clinicaltrials.gov Identifier: NCT01189552 National Science Foundation Graduate Research Fellowship (DGE-1650116)

First Name: Stacey

Last Name: Daughters

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: University of North Carolina at Chapel Hill

Contact Title: Assistant Professor

ID: 564
Contraceptive knowledge of men and women receiving medication-assisted treatment for opioid use disorder

Heidi Melbostad, University of Vermont

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Prevention

Abstract: AIM: The rate of unintended pregnancy among women with opioid use disorder (OUD) is nearly 80%. Among women with opioid and other substance use disorders who want to avoid pregnancy, only about half report current contraceptive use. Lack of contraceptive knowledge may be contributing to low rates of contraceptive use. The aim of this study was to characterize contraceptive knowledge among individuals with OUD. METHODS: Participants were a convenience sample of women (n=100) and men (n=100), ages 20-57, receiving medication-assisted treatment for OUD. Knowledge was assessed with the recently validated Contraceptive Knowledge Assessment (CKA), a self-administered 25-question multiple-choice survey. All questions included "I don't know" as a possible response. RESULTS: Percent correct averaged 44% (11/25). Participants knew the most about condoms (66% correct) and the least about birth control injections (24% correct), with intermediate levels of knowledge about implants, IUDs, and birth control pills (37%-41%). Women had significantly higher scores than men (52% vs. 39%). Men also chose "I don't know" twice as often as women (mean ± SD: 8.3 ± 5.7 vs. 4.5 ± 3.4); the number of "I don't know" responses were highest for questions about injections, implants, IUDs, and pills. CONCLUSION: Individuals with OUD lack knowledge about contraception, especially the most effective methods (e.g., implants and IUDs). Although women had higher scores than men, both would benefit from increasing their knowledge about contraception. Interestingly, contraceptive knowledge in this sample appears similar to a convenience sample of men and women attending an ambulatory care center (36% correct), yet only half of the pregnancies in the general population are unintended. Individuals with OUD may encounter additional obstacles to accessing reproductive health services and utilizing contraception. More research is necessary to better understand how to affect behavioral change around family planning for men and women with OUD.

Financial Support: NIDA grants R01 DA036670, T32 DA007242

First Name: Heidi

Last Name: Melbostad

Degrees: MA MD Ph.D etc:: M.S.

Company Affiliation: University of Vermont

ID: 565
Monoamine re-uptake inhibitors potentiate the discriminative stimulus effects of 3,4-methylenedioxypyrovalerone (MDPV) in male Sprague-Dawley rats

Lisa Baker, Western Michigan University

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Club/Designer Drugs

Topic: Behavior

Abstract: AIM 3,4-Methylenedioxypyrovalerone (MDPV) is a novel synthetic cathinone reported to have a high potential for abuse and to produce adverse medical consequences when used recreationally. Recent preclinical research indicates the psychopharmacology of MDPV is comparable to cocaine, but considerably more potent. Despite a recent influx of research on the psychopharmacology of MDPV, few studies have employed preclinical drug discrimination methods to discern the neurochemical mechanisms involved in its interoceptive stimulus effects. METHODS The present study trained six adult male Sprague-Dawley rats to discriminate 0.5 mg/kg MDPV from vehicle under an FR 20 schedule of food reinforcement. Once reliable stimulus control was established, MDPV (0.05, 0.1, 0.5 mg/kg), cocaine (2.5, 5, 10, 20 mg/kg), GBR 12909 (5, 10, 20, 40 mg/kg), and desipramine (3.2, 5.6, 10 mg/kg) were assessed for substitution. GBR 12909 (40 mg/kg) and desipramine (3.2 mg/kg) were subsequently assessed in combination with a range of MDPV doses to assess potentiation. RESULTS Although cocaine fully substituted for MDPV, no dose of GBR 12909 or desipramine substituted for MDPV. However, the MDPV dose response curve was shifted to the left by pretreatment with either GBR 12909 or desipramine. Specifically, GBR 12909 enhanced the discriminative stimulus effects of 0.5 and 0.1 mg/kg MDPV and desipramine potentiated the effects of 0.1 mg/kg MDPV. CONCLUSION These findings indicate that although MDPV's interoceptive cues appear to be most similar to those of cocaine, pretreatment with other monoamine reuptake blockers may enhance MDPV's interoceptive stimulus effects and potentially enhance its risk for abuse. Further research with additional selective monoaminergic agents is warranted to fully characterize the contribution of monoamines to the discriminative stimulus effects of MDPV.

Financial Support: National Institutes of Health (R15DA038295).

First Name: Lisa

Last Name: Baker

Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: Western Michigan University

ID: 566
Cost-effectiveness of expanding opioid agonist therapy in Ukraine: dynamic modeling analysis

Olga Morozova, Yale University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Policy

Abstract: Aim: The HIV epidemic in Ukraine is volatile, with people who inject drugs (PWID) being one of the major drivers of ongoing transmission. Fewer than 3% of PWID receive opioid agonist therapy (OAT), despite availability in this setting. Feasibility of integrating OAT into primary healthcare settings in Ukraine was recently demonstrated in a pilot study. In this study we conduct the cost-effevtiveness analysis that includes the societal benefits from drug dependence treatment as opposed to a traditional approach that focuses on the patient benefits only. Methods: Standard conceptions of drug use dynamics assume constant initiation rate. We developed a novel mathematical model that captures the possibility of a contagion effect in initiation of drug use, supply-driven demand for OAT, and OAT retention that varies in sub-populations of PWID. Using this model and a unique combination of administrative and survey data, we assessed the cost-effectiveness of increasing OAT capacity in Ukraine. Results: The analysis shows that increasing OAT capacity from 3% to 25% of the number of people with opioid use disorders (PWOUD), including those in temporary remission (about 30% of those actively injecting at any point of time), may be highly cost-effective (less than $1000 US per QALY). Increasing capacity further to 35% of the number of PWOUD, exhibits diminishing returns of only about $9300 US per QALY. Increasing number of OAT slots beyond 35% would result in unutilized capacity, and is not recommended. Elimination of key structural barriers, i.e. required governmental registration of PWID, is needed to make further increase of OAT availability meaningful. The results of this analysis are most sensitive to the assumption about contagion of drug use, mortality among active drug users and the cost of OAT. Conclusions: A 5-10-fold increase of OAT capacity in Ukraine is needed to confront the drug use epidemic; this increase would meet WHO criteria for a highly cost-effective intervention.

Financial Support: This work was supported by the National Institute on Drug Abuse grants R36 DA042643, K24 DA017072, R01 DA033679 and R01 DA029910.

First Name: Olga

Last Name: Morozova

Degrees: MA MD Ph.D etc:: MS

Company Affiliation: Yale University

ID: 567
Screening and brief intervention of drug use in adolescence from the professional perspective

Maria Angélica Alves da Silva, Federal University of São Paulo

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Adolescent

Abstract: Objective: To evaluate the knowledge and difficulties of professionals working in socio-educational contexts when conducting the Brief Screening and Intervention (SBI) of drug use among adolescents in conflict with the law. Method: One hundred and two professionals, psychologists and social workers working with adolescents in conflict with a law, anonymously answered a specific questionnaire about what they think of SBI used in adolescents in conflict with the law. The analysis correlated the responses to whether or not they received training for SBI application. Results: The main difficulties mentioned by the professionals who received the training for the SIB were: belief that this procedure should be done by specialist (31%) and lack of time (93%). The untrained professionals reported as main difficulty the belief that this procedure is not effective for adolescents in socio-educational context, that is, in conflict with the law. (29%). Professionals who have completed some course on drug abuse recently have more resistance in recognizing SBI results. In addition, the difficulties encountered in applying SBI reduced their motivation to do so. Conclusion: the results indicate the need to change some components of the SBI training programs, introducing an environment of dialogue and supervision of all the procedures adopted.

Financial Support: Unifesp - Universidade Federal de São Paulo

First Name: Maria Angélica

Last Name: Alves da Silva

Degrees: MA MD Ph.D etc:: PhD Student

Company Affiliation: Federal University of São Paulo

ID: 568
Life after overdose: Survivor narratives and their implications for emergency department interventions

Alexander Bennett, National Development and Research Institute, Inc.

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Dependence

Abstract: Aims To better understand the impacts of non-fatal opioid-related overdose (OD) on subsequent substance use patterns and OD risk behaviors, we interviewed 20 recent OD survivors about their experiences. Their narratives are juxtaposed with the perspectives of emergency medical technicians (n=9) and emergency department (ED) medical doctors (n=5) to generate a set of preliminary strategies for interventions located in EDs targeting survivors of opioid-related OD. Methods We used a hybrid inductive/deductive process to develop a codebook including a preliminary typology of impacts. Once the codebook was established, we systematically coded all transcripts in terms of impact types and the timeframes in which those impacts were realized. Results Findings indicate that motivations to reduce OD risk following a non-fatal overdose are commonplace but that intentions to reduce opioid use are often complicated by unmanaged withdrawal symptoms and perceptions of disrespect from first responders and/or hospital staff. Several narratives suggest the importance of interventions with recent OD survivors delivered by "peers," or those with personal histories of opioid use. We find that most positive, risk-reducing behavioral change occurs days, if not weeks, after overdose experiences and that support should be offered over a longer period. Interventions of this nature should also carefully consider the informal (and often moralizing) discourse from EMT/EMS and ED medical staff and how it may reinforce (or potentially counteract) the explicit aims of non-stigmatizing interventions. Conclusions Numerous states are currently working to stem serial ODs by intervening in ED settings. Our findings suggest that one-size-fits-all approaches are unlikely to achieve the maximum benefit or behavioral change sought. Most importantly, individuals are often unlikely to be receptive to intervention in the immediate aftermath of an overdose but may be highly receptive to low-threshold harm minimization or treatment navigation programs in the days following.

Financial Support: This study was funded by National Institutes of Health, National Institute on Drug Abuse 5R01DA036754-04 and 3R01DA036754-03S1

First Name: Alexander

Last Name: Bennett

Company Affiliation: National Development and Research Institute, Inc.

ID: 569
Sex-differences in the associations between social support and frequency of use and severity of cannabis dependence: A secondary data analysis

Kechna Cadet, CUNY School of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Sex Differences

Abstract: Aims: Research studies show that disturbances in social relationships are associated with increased substance use among women compared to men. However, there is little literature on the sex-differences in the association between social support and level of severity of cannabis dependence among users. The current secondary analysis examined whether social support factors were associated with frequency of cannabis use and severity of dependence across sexes. Methods: The sample consisted of 62 participants (16 females, 46 males) who participated in a larger cross-sectional study designed to examine the biopsychosocial factors associated with cannabis use disorders. The participants completed a 3-hour baseline assessment with social support and cannabis use measures. Results: There were no significant sex differences across facets of social support (i.e., emotional/informational support, tangible support, affectionate support, and positive social interaction) or in frequency of cannabis use (7-, 30-, and 90-days; all p's > .05). Correlation analyses revealed that, in males, emotional/informational social support is inversely correlated with frequency of cannabis use in the last 7 days (r= -.31, p
Financial Support: This project was supported by grants from the APA Office of Ethnic Minority Affairs and the City College City Seeds Program.

First Name: Kechna

Last Name: Cadet

Company Affiliation: CUNY School of Medicine

ID: 570
Methamphetamine-paired contexts acquire incentive salience: A human CPP study

Emma Childs, University of Illinois

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Stimulants

Topic: Behavior

Abstract: AIM: Conditioned place preference (CPP) has been used for many years in preclinical studies of drug reward, but has only recently been translated to humans. The aim of this study was to obtain objective measures of methamphetamine CPP in humans and to assess their relationship to drug subjective responses reported during conditioning. METHODS: Healthy volunteers completed four conditioning sessions, two with 20mg methamphetamine (MA) and two with placebo (PL) in randomized order. One group (Paired, N=51) always received MA in one room and PL in the other, and a second group (Unpaired N=27) received MA and PL in both rooms. At separate visits before and after conditioning, participants completed a drug-free Room Exploration Test during which they could move freely between the rooms; time spent in each room was recorded. They also completed a questionnaire to rate their preference for the rooms, and an attention bias task with pictures of the two rooms as stimuli. RESULTS: In comparison to the Unpaired group, the Paired group exhibited a subjective preference for and an attention bias toward the MA-paired room after conditioning, however there was no change in time spent in the rooms. Measures of place preference (subjective ratings, attention bias) were not related to each other, but both were significantly related to subjective responses to MA during conditioning; rewarding effects (Feel High, Want More) were positively correlated with, and aversive effects (Dislike drug effects, Anxiety) were negatively correlated with place preference. CONCLUSIONS: These findings provide the first evidence that contexts paired with drug administration in the laboratory come to elicit an attentional bias, which is consistent with the theory that the drug-associated stimulus has gained motivational relevance (i.e., incentive salience). Our results also provide further support for the notion that CPP is based upon interoceptive drug effects experienced in the drug-paired context.

Financial Support: This study was supported by the National Institute on Drug Abuse (R21DA033488).

First Name: Emma

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Degrees: MA MD Ph.D etc:: Phd

Company Affiliation: University of Illinois

ID: 571
Prevalence of pain conditions among persons with an opioid use disorder diagnosis in a primary care population

Manu Thakral, Kaiser Permanente Washington Health Research Institute

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Other

Abstract: Aim: The prevalence of concomitant opioid use disorder diagnoses (OUD) among primary care (PC) patients treated for pain is unknown. Furthermore, characteristics that distinguish such patients from those without OUD, including types of pain and the proportion treated with buprenorphine, have not been previously described. We characterized PC patients with and without diagnosed pain conditions, regarding the prevalence of OUDs and OUD treatment with buprenorphine. Methods: The Primary Care Opioid Use Disorders (PROUD) trial (NIDA-CTN-0074) is a pragmatic trial testing a collaborative care model for access to medication-assisted OUD treatment across diverse health systems in the U.S. We characterized the prevalence of diagnosed OUD, OUD treatment with buprenorphine, opioid overdose and chronic pain characteristics among patients who visited PC in 2016, using electronic health record and claims data. Results: Of the 566,256 PC patients with a pain diagnosis, 5,017 (0.89 %) had an active or remission OUD diagnosis compared to 1362 (0.37%) of 370,572 PC patients without a pain diagnosis. Among PC patients with OUDs, prevalence of opioid overdose was 5.7% and 2.4% and comorbid depressive disorders was 53.0% and 32.9% in those with and without pain diagnoses, respectively. The prevalence of buprenorphine treatment was .18% and .17% in PC patients with and without pain diagnoses, respectively. Among PC patients with pain, the prevalence of back pain, fibromyalgia, neuropathies and headaches was higher in PC patients with OUDs compared to the overall PC sample with pain. Conclusions: OUD is more common among PC patients with pain, although rare overall. Widespread or generalized chronic pain conditions were more prevalent among pain patients with OUD than in that those without OUD.

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First Name: Manu

Last Name: Thakral

Degrees: MA MD Ph.D etc:: Ph.D, ARNP

Company Affiliation: Kaiser Permanente Washington Health Research Institute

ID: 572
Impact of mentholation as a moderator of nicotine dose on relative reinforcing and subjective effects

Danielle Davis, University of Vermont

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Behavior

Abstract: AIM: When evaluating the potential of a nicotine reduction policy, it is important to examine the impact that mentholation could have on response to nicotine dose reductions as one-third of cigarette smokers regularly smoke menthol cigarettes. The present study is a secondary analysis examining whether the menthol status of cigarettes moderates response to reduced nicotine content cigarettes. METHODS: Current smokers (n=169) dichotomized as menthol (n=59) or non-menthol (n=110) users completed a multi-site, double-blind study evaluating research cigarettes of varying nicotine content. Across four sessions, participants smoked four research cigarettes (Spectrum, 22nd Century Group, menthol status consistent with usual brand) varying in nicotine content (0.4mg/g, 2.4mg/g, 5.2mg/g, 15.8mg/g) ad-lib and rated smoking experience using the modified Cigarette Evaluation Questionnaire (mCEQ). Following initial exposure, cigarette preference was assessed comparing all six possible dose pairs across sessions using a concurrent choice task. Repeated measures ANOVAs were used to examine differences across dose and menthol status for mCEQ subscales and preference across all dose comparisons in the concurrent choice tasks. Confounding demographic and smoking characteristics were covariates in the analyses. RESULTS: Ratings across the mCEQ subscales varied as a significant, graded function of nicotine dose (p CONCLUSION: These results suggest that reducing the nicotine content of cigarettes to decrease the addiction potential of smoking should similarly impact users of menthol and non-menthol cigarettes.

Financial Support: NIH/FDA P50DA036114

First Name: Danielle

Last Name: Davis

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: University of Vermont

ID: 573
Residual next-day effects of alprazolam on psychomotor performance and simulated driving in healthy normal volunteers

Marion Coe, University of Kentucky

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Sedative-Hypnotics

Topic: Prevention

Abstract: Aim: The prevalence of drugged driving has increased in the United States, and some prescription medications (e.g. zolpidem) may cause impairment after the predicted duration of therapeutic action has elapsed. The aim of this study is to determine if bedtime administration of alprazolam (which shares some pharmacological features with zolpidem) impacts cognitive or psychomotor performance the following day. Methods: Participants were healthy adult volunteers who completed 6 test sessions, each requiring an overnight stay in a controlled research unit. A double-blind, double-dummy within-subjects design was employed to examine the effects of alprazolam (0.5, 1, & 2mg), zolpidem (10mg), and placebo administered at bedtime on performance the following day. The positive control condition was alprazolam (1mg) administered on the test morning (with placebo administered the night before). Driving simulator measures (e.g., standard deviation of lane position and number of lane departures—both measures of swerving), the circular lights task (CLT) and a battery of questionnaires querying drug effects were collected the afternoon before drug administration and repeatedly 1-7 hours after waking the next day. Peak and trough values for outcome measures were calculated for each drug condition and analyzed using mixed models. Results: Morning alprazolam 1mg (the positive control) and bedtime alprazolam 2mg and zolpidem 10mg acutely impaired performance on driving tasks and the CLT. Decrements on these performance tasks, including reduced targets hit on the CLT and increased swerving during driving simulations with impairments by morning alprazolam 1mg > bedtime alprazolam 2mg > bedtime zolpidem 10mg. Subject-rated measures revealed increased ratings of sedation and bad drug effects for these same doses. Conclusion: Bedtime administration of zolpidem 10mg and alprazolam 2mg impair performance the following day—indicating that alprazolam used before bed poses an as yet unrecognized public safety risk in the form of residual next-day psychomotor impairment or drugged-driving.

Financial Support: R36DA043714 (MAC)

First Name: Marion

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Company Affiliation: University of Kentucky

ID: 574
Fentanyl checking interest and overdose risk among opioid users: A multisite study

Ju Nyeong Park, Johns Hopkins Hospital

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Prevention

Abstract: AIM: The U.S. is in the midst of a fentanyl overdose epidemic. Tools to reduce fentanyl overdose mortality rates are urgently needed. Fentanyl checking allows people who use drugs (PWUD) to determine whether their drugs contain fentanyl and may help PWUD mitigate overdose risk. This study aimed to examine the correlates of fentanyl checking interest among opioid users. METHODS: Opioid users (N=334) in Baltimore, Boston and Providence were invited to participate in a survey at a number of street locations and service organizations in the summer of 2017. Respondents were presented with information on existing fentanyl checking tools, and asked to rate their interest in using them. Bivariate and multivariate binomial regression were used to model the associations in Stata/SE 14.2. RESULTS: The sample was 59% male, 37% White, 42% Black, 12% Hispanic, 68% homeless, and median age was 44. The majority recently used a drug they thought contained fentanyl (73%) however did not prefer drugs containing fentanyl (74%). Most (91%) had used multiple drugs in the past 6 months: heroin (83%), cocaine (85%) and prescription opioid misuse (44%) were common. Half of the sample (53%) also sold drugs. Most had ever experienced one or more overdoses (64%) and attributed their last overdose to fentanyl (88%). The majority and were interested in fentanyl checking (85%). Fentanyl checking interest was independently associated with recently using drugs suspected of containing fentanyl (aOR:2.38, 95%CI:1.52–3.73), witnessing a fatal overdose (aOR:1.90, 95%CI:1.02–3.55), and older age (aOR:1.03, 95%CI:1.01–1.05) after accounting for clustering by city. Preference for fentanyl, gender and race were included in the model but not associated with interest. CONCLUSION: High interest in fentanyl checking was observed among street-opioid users, the majority of whom did not prefer fentanyl but suspected fentanyl presence in their drugs. These data support the need to examine the feasibility and effectiveness of implementing fentanyl checking to reduce fentanyl-related overdose burden.

Financial Support: Bloomberg American Heath Initiative

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Company Affiliation: Johns Hopkins Hospital

ID: 575
Behavioral intervention to reduce opioid overdose among high-risk persons with opioid use disorder: A pilot randomized controlled trial

Emily Behar, San Francisco Department of Public Health

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Prevention

Abstract: AIM. The United States is amidst an opioid epidemic, including synthetic opioids that may result in rapid death, leaving minimal opportunity for bystander rescue. We pilot-tested a behavioral intervention to reduce the occurrence of opioid overdose among opioid dependent persons at high-risk for overdose. METHODS. We conducted a single-blinded randomized-controlled trial of a repeated dose motivational interviewing intervention (REBOOT) to reduce overdose versus treatment as usual, defined as information and referrals, over 16 months at the San Francisco Department of Public Health from 2014-2016. Participants were 18-65 years old, had opioid use disorder by Structured Clinical Interview, active opioid use, opioid overdose within 5 years, and prior receipt of naloxone. The intervention was administered at months 0, 4, 8, and 12, preceded by the assessment which was also administered at month 16. Dual primary outcomes were any overdose event and number of events, collected by computer-assisted personal interview, as well as any fatal overdose events per vital records. RESULTS. A total of 78 persons were screened and 63 enrolled. Mean age was 43 years, 67% were born male, 65% White, 17% African-American, and 14% Latino. Ninety-two percent of visits and 93% of counseling sessions were completed. At baseline, 33.3% of participants had experienced an overdose in the past four months, with a similar mean number of overdoses in both arms ($p = 0.95$); 29% overdosed during follow-up. By intention-to-treat, participants assigned to REBOOT were less likely to experience any overdose (incidence rate ratio [IRR] 0.62 [95%CI 0.41-0.92, $p = 0.019$) and experienced fewer overdose events (IRR 0.46, 95%CI 0.24-0.90, $p = 0.023$), findings that were robust to sensitivity analyses. There were no differences between arms in days of opioid use, substance use treatment, or naloxone carriage. CONCLUSION. REBOOT reduced the occurrence of any opioid overdose and the number of overdoses.

Financial Support: No financial support needed

First Name: Emily

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ID: 576
Exploring cannabis-specific parenting as a mechanism of the intergenerational transmission of cannabis use and cannabis use disorder on offspring adolescent cannabis use

Ariel Sternberg, Arizona State University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Adolescent

Abstract: Aim: Parental cannabis use disorder (CUD) is a known risk factor for adolescent cannabis use. However, less is known about mediating mechanisms underlying this relation. One potential mechanism is parenting behaviors to deter adolescent cannabis use, known as cannabis-specific parenting strategies. Research from tobacco and alcohol literatures suggest that substance-specific parenting is sometimes successful in reducing adolescent use, and at times may increase use. No study has considered cannabis-specific parenting strategies as a mechanism explaining the relation between parental CUD and adolescent cannabis use and none have distinguished between parental cannabis use and parental CUD. This study investigated the impact of parental CUD and cannabis use on adolescent cannabis use through the mechanism of cannabis-specific parenting. We hypothesized that parental CUD would decrease use of cannabis-specific parenting strategies and increase adolescent cannabis use. Methods: With data from a multigenerational longitudinal study, multilevel longitudinal mediation models (ordered logistic regression predicting adolescent cannabis use onset; N=363) compared adolescent offspring of parents who never used cannabis, parents who used cannabis without CUD, and parents with CUD. Results: Adolescents of parents with CUD used cannabis more than both adolescents of parents who used without CUD (AOR=3.15, p

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Last Name: Sternberg

Degrees: MA MD Ph.D etc:: MA

Company Affiliation: Arizona State University

ID: 577
Characterizing tobacco use in a military sample

Alexa Lopez, US Army Medical Research Directorate-West

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Behavior

Abstract: AIM Despite declines in tobacco use among the general US population, cigarette smoking and smokeless tobacco use remain elevated among service members. Pervasive tobacco use not only impacts acute and chronic health at the individual and public health levels, but also military readiness. The present study characterized Soldiers who reported cigarette smoking, smokeless tobacco use, or dual-use on a number of factors including demographics, prior military-related experiences, behavioral health, and risk behaviors. METHODS Cross-sectional, confidential survey data were collected from 1688 Soldiers assigned to an armored brigade combat team as part of a larger study examining organizational culture, performance, and health. Measures included demographics (age, rank, education, time in service); combat experiences; behavioral health (depression, anxiety, posttraumatic stress, alcohol use, sleep); risk behaviors; and tobacco use (cigarettes, smokeless). Individuals were defined as smokers, smokeless users, and dual-users. $\chi 2$ and ANOVAs were used to examine bivariate associations. RESULTS 29.7% smoked cigarettes, 23.2% used smokeless tobacco, and 11% were dual-users. Smoking was associated with rank, education, combat experiences (e.g., nearby IED explosion), GAD and alcohol misuse, sleep, and risk behaviors (e.g., reckless driving). Smokeless tobacco use was associated with education, alcohol misuse, sleep, and risk behaviors (i.e., trouble with leadership), but did not differ by rank. Dual-use was associated with rank, education, time in service, depression, anxiety, alcohol misuse, and risk behaviors (e.g., financial problems). CONCLUSIONS Prevalence rates remain elevated in this vulnerable population, it is important to fully characterize associations with relevant variables to understand risk factors. Targeted efforts to reduce cigarette and smokeless tobacco use among soldiers should also be cognizant of other risk factors that are present in military populations.

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ID: 578
GZ-11608-induced blockade of methamphetamine's reinforcing effect is not surmounted by increasing the dose of methamphetamine in male rats

Linda Dwoskin, University of Kentucky

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Stimulants

Topic: Behavior

Abstract: Linda P. Dwoskin1, Na-Ra Lee1, Emily Denehy2, Guangrong Zheng3, Peter A. Crooks3 and Michael T. Bardo2 Title: GZ-11608-induced blockade of methamphetamine's reinforcing effect is not surmounted by increasing the dose of methamphetamine in male rats. Aim: VMAT2 has been identified as a target for medication development to treat methamphetamine (METH) use disorder. Structure-activity studies revealed that GZ-11608 exhibits high affinity at VMAT2 (Ki=26±3.6 nM) and high selectivity for VMAT2 over the hERG channel, dopamine and serotonin transporters, and nicotinic receptors (163-fold, 241-fold, 94-fold, and >1180-fold, respectively). GZ-11608 (30 mg/kg, s.c.) decreases METH self-administration (0.05 mg/kg/infusion) without altering food-maintained responding. It is not known if the GZ-11608-induced decrease in METH self-administration is surmounted by increasing METH unit doses. We hypothesized that GZ-11608 would flatten the methamphetamine dose-effect curve, rather than shift it to the right. Methods: Adult male Sprague-Dawley rats (n=12) were trained to self-administer i.v. METH (0.05 mg/kg/infusion) using standard 2-lever operant conditioning (FR5 schedule). Then, rats were allowed to self-administer varying unit METH doses (0, 0.01-0.25 mg/kg/infusion) to establish a dose-response curve. Then, the dose-response curve was re-established following pretreatment with GZ-11608 (30 mg/kg, s.c., 15 min before the session). Only rats completing all testing phases were used for data analysis. Results: A repeated-measures ANOVA followed by Tukey's test revealed main effects of METH dose [$F(5,68)=4.74$; $p < 0$ .001] and GZ-11608 pretreatment [$F(1,68)=49.60$; $p < 0$ .001], and an interaction [$F(5,68)=2.55$; $p < 0$ .05]. In the absence of pretreatment, varying the unit dose of METH resulted in an inverted U-shaped function. Following GZ-11608 pretreatment, the METH dose-response curve was shifted downward; GZ-11608 significantly decreased METH self-administration at unit doses of 0.01, 0.025 and 0.05 mg/kg/infusion. Conclusion: The ability of GZ-11608 to decrease METH's reinforcing effect is not surmounted by increasing the unit dose of METH, suggesting a noncompetitive mechanism of action for this compound at VMAT2.

Financial Support: U01 DA013519

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Last Name: Dwoskin

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: University of Kentucky

Contact Title: Professor

ID: 579
Non-partner violence perpetration among emerging adults: Relationship between poly-substance use and trait mindfullness

Jessica Ramirez, University of Michigan

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Behavior

Abstract: Aim: Violence is one of the leading causes of death among youth. Alcohol misuse has been consistently linked with violence perpetration. However, there are inconsistent findings in the literature on the association between marijuana and opioid use, as well as poly-substance use and non-partner violence (NPV) perpetration. This cross-sectional study examines the relationship between substance use (alcohol, opioids, and marijuana), trait mindfulness and NPV perpetration. Methods: This analysis uses secondary data from a subsample of the Ahimsa Project. Emerging adults (EA; 18-25 years old) were recruited from an urban ED and completed a self-administered computer survey that included NPV, substance use (alcohol, opioids, and marijuana), trait mindfulness, and demographic characteristics. Multivariate logistic regressions were conducted for NPV, examining associations with substance use, trait mindfulness, and demographic characteristics. Results: The sample included 665 EAs (53.6% Male; 58.1% Black, 35.6% Caucasian). Analyses showed that receiving public assistance (OR=1.75; 95% CI: 1.10-2.78) was associated with NPV compared to no receipt of public assistance. Analyses also showed that alcohol only (OR= 2.67; 95% CI:1.22-5.85), alcohol and marijuana (OR-3.50; 95% CI:1.73-7.10), marijuana and opioids (OR=5.59; 95% CI: 1.65-18.9), and all three substances (alcohol, marijuana and opioids (OR= 5.91; 95% CI: 2.61-13.4) were positively associated with NPV. Reporting trait mindfulness (OR= 0.96; 95% CI: 0.95-0.98) was negatively associated with NPV. Conclusions: Findings indicate greater NPV with poly-substance use (alcohol, marijuana, and opioids) and receiving public assistance, a potential indicator of chronic economic stress. Additionally, findings indicate trait mindfulness may be a potential protective factor for NPV, and focus for prevention interventions to reduce NPV. These findings suggest future mindfulness interventions geared toward supporting preventative measures for NPV should also focus on decreasing poly-substance use. [Supported by NIAAA (K23AA022641), NICHD (R03HD087520), the NIH National Center for Advancing Translational Sciences (2UL1TR000433) and the UM Injury Center (CDC R49CE002099).]

Financial Support: [Supported by NIAAA (K23AA022641), NICHD (R03HD087520), the NIH National Center for Advancing Translational Sciences (2UL1TR000433) and the UM Injury Center (CDC R49CE002099).]

First Name: Jessica

Last Name: Ramirez

Degrees: MA MD Ph.D etc:: MPH,MSW

Company Affiliation: University of Michigan

ID: 580
The effects of opioids and alcohol, alone and in combination, on simulated driving performance

Shanna Babalonis, University of Kentucky

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Behavior

Abstract: Aims: Despite the prevalence and enormous public health impact of driving under the influence of drugs ("drugged driving"), there are sparse data examining acute opioid effects on driving performance. The aim of this study is to examine the effects of oxycodone alone and in combination with alcohol in humans on simulated driving performance, subject-rated outcomes and psychomotor measures. Methods: Healthy participants without current opioid use or alcohol use disorder completed this ongoing within-subject, double blind, placebo-controlled, randomized outpatient study. Six 8-hr sessions were completed during which oral oxycodone (0, 5, 10mg) was administered 30min prior to oral alcohol (0, 0.8g/kg) for a total of 6 test conditions. Driving performance, participant- and observer-rated outcomes, psychomotor performance, and physiological effects were assessed. Results: Active alcohol produced increased subjective ratings (e.g., drug liking) and risky driving performance (relative to placebo) on several outcomes (e.g., speeding, lateral control). Oxycodone alone produced dose-related increases on ratings of drug effects (e.g., feeling high) and impaired driving performance, generally to a lesser degree than alcohol alone. The combination of either dose of oxycodone and alcohol decreased driving ability (poor lateral control/lane weaving), often to a greater degree than either substance alone, and increased subjective ratings of global impairment. Conclusions: These data suggest that acute, therapeutic doses of oxycodone produce decreases in driving acuity in a simulated driving environment, but to a lesser extent than those engendered by the legal limit for alcohol. The combination of oxycodone and alcohol further increased driving impairment on outcomes predictive of driving ability (e.g., drifting out of lane/across lines). These data indicate that oxycodone decreases driving acuity and may enhance alcohol impairment, providing important public health information on drugged driving.

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Last Name: Babalonis

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: University of Kentucky

ID: 581
The effects of celecoxib on a human laboratory model of cannabis withdrawal and relapse

Caroline Arout, Columbia University Medical Center

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Dependence

Abstract: AIM: Cannabis withdrawal contributes to high relapse rates in Cannabis Use Disorder (CUD). Preclinical studies show that elevating endogenous cannabinoid (eCB) levels reduces symptoms of cannabinoid withdrawal. Blocking cyclooxygenase-2 (COX-2), an enzyme that inactivates brain eCBs, with non-steroidal anti-inflammatory drugs increases central eCB levels in mice and reduces anxiety-like behavior. We hypothesized that blocking COX-2 activity with the FDA-approved, COX-2 selective inhibitor, celecoxib, would increase eCB levels in abstinent cannabis smokers and reduce cannabis withdrawal and relapse in the human laboratory. METHODS: This within-subjects, counter-balanced study had two 11-day phases: One phase tested celecoxib (200 mg BID), and the other tested placebo (0 mg BID), with an outpatient medication clearance phase (> 14 days) in between. On the first 2 inpatient days, participants smoked active cannabis (5.6% THC) under controlled conditions (intoxication). For the next 4 days, only placebo cannabis (0.0% THC) was available for self-administration (withdrawal). For the next 3 days, active cannabis was available for self-administration (relapse). Assessments of mood, sleep, caloric intake, cognitive performance, and plasma levels of eCBs and related lipids were collected in each phase. RESULTS: Fifteen daily, nontreatment-seeking cannabis smokers completed the study. Under placebo conditions, cannabis abstinence produced significant withdrawal (negative mood, sleep disruption, weight loss), and 40% of the participants 'relapsed,' i.e., paid to self-administer cannabis after abstinence. Celecoxib reversed some withdrawal symptoms (sleep disruption, weight loss), increased cannabis craving, but had no effect on relapse. Cannabis abstinence also significantly altered plasma eCB-related lipids but celecoxib had no effect. Significance was determined by $p < 0.05$. CONCLUSION: These findings suggest that although celecoxib significantly attenuated some signs of withdrawal, this dose did not reduce relapse or affect plasma levels of eCBs. Celecoxib's effects on craving, body weight, and sleep indicate it modifies centrally-mediated eCBs; higher doses could be considered in future studies.

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First Name: Caroline

Last Name: Arout

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Columbia University Medical Center

ID: 582
Assessing correspondence between subjective effects measures and concurrent choice data in a laboratory study evaluating the effects of cigarettes with varying levels of nicotine

Cecilia Bergeria, University of Vermont

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Behavior

Abstract: Aim: Subjective ratings are widely used as a proxy measure of the reinforcing effects and associated abuse liability of tobacco products. The purpose of this secondary analysis was to determine whether ratings on the modified Cigarette Evaluation Questionnaire (mCEQ) correspond with choice allocation in a concurrent choice task involving cigarettes with varying levels of nicotine. Methods: Current smokers (N=169) participated in a multi-site, double blind study evaluating research cigarettes with varying levels of nicotine content (0.4, 2.4, 5.2, 15.8 mg/g). In Phase I (4 sessions, 1 research cigarette per session), participants completed the mCEQ (Satisfaction, Psychological Reward, Aversion, Enjoyment of Respiratory Sensations, Craving Reduction subscales) following ad-lib smoking of the research cigarette. In Phase II (6 sessions), cigarette preference was assessed (two-dose concurrent choice tests). Difference scores were calculated for each mCEQ subscale for all six dose comparisons evaluated in Phase II. We calculated the effects for mCEQ subscale difference scores for predicting preference for the high dose in a given dose comparison using a mixed-model of repeated measures analysis of variance. Results: Difference scores for mCEQ subscales Satisfaction and Enjoyment of Respiratory Tract Sensation predicted preference for the higher dose cigarette at all six dose comparisons. Psychological Reward and Craving Reduction difference scores predicted preference for the higher dose cigarette at five dose comparisons. Psychological Reward and Craving Reduction difference scores did not predict preference for the higher dose at the 5.2 v. 2.4 mg/g comparison and the 15.8 v. 5.2 mg/g comparison, respectively. Aversion did not predict preference for the higher dose at any of the dose comparisons. Conclusion: Four of the five mCEQ subscales predicted the relative reinforcing effects of cigarettes varying in nicotine content. These results suggest that these subscales may be an efficient and valid way to assess the abuse potential of cigarettes.

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First Name: Cecilia

Last Name: Bergeria

Degrees: MA MD Ph.D etc:: MA

Company Affiliation: University of Vermont

ID: 583
Opioid use disorder among persons with hepatitis C and HIV: Data from 8 health systems

Judith Tsui, University of Washington

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: AIDS/Immune

Abstract: Aim: Opioid use disorders (OUD) are associated with injection drug use, a major risk factor for hepatitis C virus (HCV) and HIV. We described the prevalence of OUD diagnosis and use of medications for OUD (MOUD), including buprenorphine and injectable naltrexone, among persons with HCV and HIV across 8 large health systems. Methods: The study used electronic health record and insurance claims data collected for the Primary care Opioid Use Disorders (PROUD) study, a pragmatic trial to test whether a collaborative care model increases OUD treatment in primary care. The present study used 2015 data from 8 health systems on OUD diagnosis and treatment for patients ≥16 years old who visited primary care. We compared OUD diagnosis and treatment by HCV and HIV status based on ICD-9 codes. OUD diagnosis was specified as "active" or "in remission." Methadone maintenance treatment is rarely delivered in PC and not included. Results: Among 938,665 patients seen in 2015, 7218 (0.8 %) were diagnosed HCV+ and 2076 (0.2%) were HIV+. Overall, 7.2% of HCV+ and 1.3% of HIV+ patients had an active OUD diagnosis (versus 0.5% of both HCV- and HIV- patients); 2.5% of HCV+ and 0.4% of HIV+ patients had a diagnosis of OUD in remission (versus 0.1% of HCV- and 0.2% HIV- patients, respectively). The proportion of OUD patients (n=5,802) treated with MOUD varied somewhat by infection status (22.2% HCV+ vs. 28.7% HCV-; 12.5% HIV+ vs. 28.1% HIV-). Conclusion: We found a higher prevalence of OUD diagnosis among HCV+ and HIV+ patients, but lower than expected given the known associations, suggesting under-diagnosis within these high risk groups. MOUD, which have been shown to reduce transmission of HIV and HCV, are underutilized in all groups. However, results are limited in the HIV + group with comorbid OUDs due to small sample size (n=32).

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Contact Title: Acting Assistant Professor

ID: 584
Sex differences in the associations between stress reactivity, impulsivity, and problematic use in smokers and gamblers

Stephanie Wemm, Yale University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Sex Differences

Abstract: Aim: The course of addiction, be it substance-related or behavioral, differs for men and women in that women tend to have a later age of onset but a shorter time to developing problematic behavior ("telescoping"). This suggests that biological processes may act similarly on different addiction phenotypes. Addicted men and women differ in aspects impulsivity, such as delay discounting and impulse dyscontrol. Also, substance-dependent women display a more dysregulated cortisol and emotional response to stress as compared to addicted men. Therefore, this study examined whether gender moderates the links between impulsivity, stress reactivity, and addiction in male and female heavy smokers and problem gamblers. Methods: Thirty scratch-off gamblers, 30 smokers, and 32 controls completed questionnaires and then underwent a stressor. Assessments included cortisol and self-report questionnaires including measures of stress, impulsivity (delay discounting; MCQ: Kirby, 1996), distress-related impulse dyscontrol (DERS: Gratz, 2004), and smoking/gambling amount (TLFB: Sobell, 1992) and severity (SOGS: Lesieur; 1987; FTND: Heatherton, 1991). We used path analyses (Mplus V8) and compared nested models using differences in the S-B $\chi 2$ (Satorra, 2000). Results: The model differed between controls and addicted groups (p
Financial Support: NIH F31DA038931, American Psychological Foundation

First Name: Stephanie

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Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Yale University

ID: 585
Methadone treatment programs may be a key venue to engage women with opioid use disorder in family planning

Curtis Bone, Yale University School of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Behavior

Abstract: AIM Among women with opioid use disorder (OUD) 80-90% of pregnancies are unintended compared to 51% in the general population. Unintended pregnancy is associated with preterm labor as well as maternal and child mortality; most often it is due to non-use of contraception. There is a paucity of data regarding family planning related attitudes and behaviors among women with OUD. We aim to determine prevalence of contraception use and attitudes towards family planning among women with OUD as they enter a methadone treatment program. METHODS The APT foundation is a non-profit substance use treatment facility in New Haven, Connecticut. We added a seven item screening questionnaire to the intake process to assess contraception use and attitudes towards family planning. For study inclusion, we selected women capable of pregnancy and those who were pregnant as they entered methadone treatment. Data collection began July 18, 2017 and it is ongoing. We conducted a descriptive analysis of these data to address our study aims. RESULTS We screened 166 women and 110 women were capable of pregnancy. Among them, 90% were not interested in pregnancy and 60% were not using any method of contraception. Of the women using contraception, 13% reported use of a highly effective form of contraception and 50% reported use of low efficacy forms, such as withdrawal. Regarding patient attitudes, 29% were at least somewhat interested in learning more about effective forms of contraception and 32% felt that integrating family planning with substance use treatment was of some importance. CONCLUSION There is an unmet contraception need among women with OUD. Methadone treatment facilities may serve as a key location to engage women with OUD in family planning discussions as well as initiation of contraception.

Financial Support: The project described was supported by R25DA033211 from the National Institute on Drug Abuse

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ID: 586
Does cannabis onset now trigger onset of drinking alcohol? An epidemiologic case-crossover approach

Villisha Gregoire, Michigan State University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Epidemiology

Abstract: Aim: Adolescent-onset cannabis use sometimes predates alcohol drinking, and raises a possibility that cannabis onset might trigger precocious onset of drinking of alcohol beverages, possibly before the legal drinking age. Studying a large nationally representative sample of newly incident drinkers in the United States (US), we estimate the degree to which cannabis onset might trigger drinking onset, using epidemiologic case-crossover approaches in which subjects serve as their own controls. Methods: Study population samples for US National Surveys on Drug Use and Health, 2002-16, included >700,000 non-institutionalized civilians 12-21 years of age. Computer-assisted self-interviews identified 42,090 newly incident drinkers. In case-crossover analyses, we specified a drinker's 'hazard interval' at 't-1' – i.e., the month just prior to month 't' of drinking onset. Month 't-2' was specified as that same subject's control interval. Year-by-year, relative occurrence of cannabis onset in 't-1' versus 't-2' yields a self-matched risk ratio (RR) estimate and McNemar's test statistic for matched data. Meta-analysis was used to produce summary estimates. Results: RR estimates were statistically robust for all 12-to-21-year-olds and for 12-17-year-olds as well as 18-21-year-olds. Estimated meta-analytic summary RR is 1.6 for the 12-17 year olds (95% CI = 1.4, 1.8), and RR is 1.5 for 18-21 year olds (95% CI = 1.1, 2.0). Conclusions: Subject to limitations of this epidemiologic case-crossover approach, we conclude that cannabis onset now might be triggering drinking onset. Other potential explanations for this rather modest observed association deserve discussion. Randomized controlled trials now underway to evaluate cannabis-onset prevention programs can provide more definitive evidence about this potential triggering mechanism. These cannabis-oriented programs might help reduce incidence of underage drinking and its associated hazards.

Financial Support: K05DA015799[JCA], T32DA021129[KA] and Michigan State University

First Name: Villisha

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Company Affiliation: Michigan State University

ID: 587
Childhood risk factors to early onset cannabis use among African American and European American adolescents

Manik Ahuja, Postdoctoral Research Scholar

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Ethnic Differences

Abstract: AIMS Familial factors during early childhood including parental substance misuse contribute to increased risk for cannabis use in offspring, but whether they increase risk for early use is not well studied. We focused on associations of familial factors and family risk (1) to test the association of a familial factors from age 6 to 13 including family rearing environment, parental discipline, and parental substance misuse (2) improve our understanding of how risk factors during adolescence for early cannabis use may vary by race and gender METHODS Data (n=1,461) are from the Missouri Family study (MOFAM), a longitudinal high-risk family study designed to examine the effects of familial influences on adolescent offspring outcomes including substance use involvement in a sample of ethnically diverse families. Analyses were stratified by race. Multivariate analysis were used to determine the association between familial factors and early cannabis use. Samples of youth were identified from state birth records, and familial status as high or low risk was based on mother's report of fathers' heavy alcohol use at screening. RESULTS In the African American cohort, parent separation/divorce (RRR=2.66; 95% CI:1.26-4.01), two or more forms of childhood physical discipline (RRR=2.24; 95% CI: 1.23-4.08), physical discipline (mother) that hurt the next day (RRR=1.80; 95% CI: 1.00-3.23), and conduct disorder symptoms (RRR=5.89; 95% CI: 3.27-10.62) were associated with early onset of cannabis use before age 15. In the European American cohort, maternal and paternal cannabis use (RRR=4.75; 2.21-10.19) and (RRR= 3.21; 95% CI: 1.31-7.87) respectively and conduct disorder symptoms (RRR=3.44; 1.42-8.34) were associated with early cannabis use before age 15. CONCLUSIONS Key differences in risk factors for early cannabis use were found at the race level. In the African American cohort, factors within the child rearing environment contributed significantly to development of early initiation of cannabis. While in the European American cohort, paternal cannabis use was most influential.

Financial Support: The project was supported by Grant Number T32DA01035) from the National Institute on Drug Abuse (NIDA) and R01AA12640.

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ID: 588
Pre-loading effects on ad-libitum alcohol intake in binge drinkers

Kimberly A Bernosky, D'Youville College

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Alcohol

Topic: Behavior

Abstract: AIM: Pre-gaming results in high levels of alcohol intake and a greater likelihood of engaging in risk behaviors. This study investigated the influence of an alcohol pre-load on ad libitum drinking. Furthermore simulated driving, behavioral disinhibition and stimulation were quantified after pre-load administration and again after the ad libitum session. METHODS: Binge drinkers (n=32, 16 female) were recruited from the community and were randomly assigned to receive 0.6 g/kg alcohol or placebo. Participants completed a test battery and underwent a two-hour ad libitum drinking session where they could consume up to ten 0.04 g/kg alcohol drinks. RESULTS: Amount of alcohol consumed in the ad libitum session did not significantly differ as a function of pre-load beverage type. The mean time to consume each drink was significantly reduced in those who received alcohol relative to placebo. Pre-load did not significantly affect driving, disinhibition or stimulation. However, correct performance on a task of immediate memory was impaired by alcohol pre-load. CONCLUSION: An alcohol pre-load increased the mean speed at which alcohol drinks were consumed in an ad libitum session. The speed of alcohol consumption determines the intoxication produced by alcohol, suggesting that these individuals were drinking in a way to maximize the intoxicating effects of alcohol.

Financial Support: D'Youville College

First Name: Kimberly A

Last Name: Bernosky

Degrees: MA MD Ph.D etc:: MA, PhD

Company Affiliation: D'Youville College

ID: 589
A novel delayed cigarette purchase task: Associations with craving and smoking urges

Mikhail Koffarnus, Virginia Tech Carilion Research Institute

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Behavior

Abstract: AIM: Behavioral economic methodology has advanced in recent years; specifically, there has been increasing use of the Hypothetical Purchase Task to examine commodity valuation and Delay Discounting tasks to examine devaluation of delayed rewards. While both assess valuation processes, these two measures have typically been analyzed as distinct. Extending these methodologies, the current study sought to integrate these commodity valuation measures with a novel Delayed Cigarette Purchase Task. METHODS: Participants were recruited from Amazon Mechanical Turk and read a scenario similar to previous Cigarette Purchase Task studies. Before reporting how many cigarettes they would purchase, participants chose between two options: one option included a "Local" cigarette store that delivered cigarettes relatively immediately and another option included an "Online" cigarette store that delivered cigarettes after various delays. After choosing the store from which they would like to purchase cigarettes, participants indicated the number of cigarettes they would purchase. RESULTS: Analyzing the proportion of choices towards either store revealed orderly delay-associated shifts such that longer delays resulted in switching at higher prices. This pattern reveals the economic cost associated with delay. In multiple regression models, tolerating higher prices to avoid the Online store delays in this task was associated with smoking urges and craving, and this association was greater than that obtained with conventionally measured discounting rate or demand parameters. CONCLUSION: These results suggest a potential method for extending the behavioral economic delay discounting and purchase task literature towards integrating aspects of delay as an economic cost.

Financial Support: Institutional funds.

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Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Virginia Tech Carilion Research Institute

ID: 590
Effectiveness of self-management for the treatment of chronic pain and aberrant drug-related behavior: Patients' experiences with a web-based, cognitive behavior therapy intervention

Andrew Rosenblum, NDRI

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: Aim: Given heightened concern about the limitations and risks of long-term opioid therapy, non-pharmacological treatments for chronic pain are increasingly recommended and may be especially valuable for pain patients with histories of medication misuse. Self-management approaches such as cognitive behavior therapy (CBT) have been found effective for chronic pain, yet remain under-utilized. This study explores the experiences and perspectives of chronic pain patients with aberrant drug-related behavior (ADRB) who participated in a clinical trial to evaluate a novel web-based self-management intervention. Methods: Opioid treated chronic pain patients meeting criteria for ADRB were randomized to 12 weeks of treatment-as-usual (TAU; n=55) or TAU plus the web-based intervention (n=55). Semi-structured, qualitative interviews were conducted post-intervention with 24 web-based assigned patients to explore their perspectives on the intervention and how use of the program's CBT skills affected their experience of chronic pain. Audio-recorded interviews were transcribed and analyzed for dominant themes. Results: Trial results demonstrated that the web-based group reported significantly less ADRB, pain catastrophizing, and emergency room visits for pain than the TAU group, although no significant differences in pain severity or pain interference were observed. In qualitative interviews, web-based patients offered valuable insights into perceived effects of the web-based program that allow for a more nuanced interpretation of trial outcomes. Interviewees emphasized that the web-based program: fostered a new sense of agency over the pain experience; provided tools to better cope with pain and pain-related distress irrespective of changes in pain severity; helped increase activity through goal setting content and interactive features; and appealed as an alternative to medication, enabling some to reduce opioid intake. Conclusion: Findings highlight the perceived utility of a self-management approach for improving patients' ability to cope with pain. Technology-based approaches may help foster wider adoption of evidence-based behavioral therapies such as CBT in chronic pain treatment.

Financial Support: NIH/NIDA Grant #R01DA026887 to Andrew Rosenblum and Lisa A. Marsch. Honoria Guarino received a pilot grant from the Center for Technology and Behavioral Health at Dartmouth College, a NIDA-funded P30 Center, to conduct a qualitative process research component of this parent study.

First Name: Andrew

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Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: NDRI

ID: 591
Evaluation of the interoceptive stimulus effects of the synthetic cathinones, 4-MMC and MDPV, using a three-lever drug discrimination procedure

Lisa Baker, Western Michigan University

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Club/Designer Drugs

Topic: Behavior

Abstract: AIM Drug discrimination has unsurpassed utility in determining the mechanism of action of CNS active substances (McMahon, 2015). Although typically employed using a drug-no drug discrimination (DN), variations exist in which discrimination is trained between two different drugs (DD) or between two different drugs and no drug stimulus (DDN). Previous research indicates the DDN procedure is a more sensitive method to differentiate pharmacologically similar drugs (Callahan and Appel, 1990; Goodwin and Baker, 2000). In previous drug discrimination research with synthetic cathinones, two popular constituents, 3,4methylenedioxypyrovalerone (MDPV) and 4-methylmethcathinone (4-MMC), have exhibited an asymmetrical substitution pattern with other drugs such as cocaine and MDMA (Gatch, Taylor, & Forster, 2013; Berquist & Baker, 2017). The aim of the current study is to determine if rats can be trained to discriminate between MDPV and 4-MMC using a DDN procedure. It is hypothesized that discrimination between 4-MMC and MDPV will provide evidence that these substances are pharmacologically distinct. METHODS Six adult male Sprague-Dawley rats were trained to discriminate MDPV (0.5 mg/kg) and 4-MMC (2 mg/kg) from saline under a FR 10 schedule of food reinforcement. Substitution tests were conducted with each training compound followed by tests with other psychostimulants (cocaine, methamphetamine), entactogens (MDMA, MDA) and hallucinogens (LSD, mescaline). RESULTS Criteria for stimulus control (80% discrimination accuracy in 8 of 10 consecutive sessions) were met within an average of 39.8 (±6.1) sessions (Range: 29-60). Substitution tests with a range of doses of each training drug produced dose-dependent increases in 4-MMC or MDPV-lever responding, as predicted. Substitution tests with psychostimulants and serotonergic hallucinogens are in progress. CONCLUSION Results indicate rats can readily differentiate the stimulus effects of MDPV and 4-MMC. Moreover, this three-lever discrimination was established within approximately the same number of training sessions required to establish a two-lever drug discrimination with either MDPV or 4-MMC in previous studies. Inasmuch as drug discrimination is a model of subjective drug effects, these results indicate MDPV and 4-MMC have distinctly different subjective effects. These findings may serve to inform clinical science regarding possible treatments for abuse of these substances.

Financial Support: National Institutes of Health (R15DA038295) and Western Michigan University Graduate College

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Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: Western Michigan University

ID: 592
Understanding the impact and sources of site differences in a multisite clinical trial of a technology-delivered psychosocial intervention for substance use disorders

Martina Pavlicova, Columbia University Mailman School of Public Health

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Treatment

Abstract: AIM: Site effects (main effects of site and/or site by treatment interactions) on primary outcome have been identified in the majority of studies performed by NIDA's National Drug Abuse Treatment Clinical Trials Network. While rarely explored, identifying patient- and site-level factors associated with site effects can provide information about the context in which outcome is optimized. METHODS: In a 10-site clinical trial evaluating the effectiveness of a web-based psychosocial intervention compared to usual treatment of patients (N=507) with substance use disorders, the primary outcome analysis yielded a main effect of site, modeled as a fixed effect, on the outcome of abstinence. In the current analysis, we model site as a random effect and use a hierarchical generalized linear model (HGLM) to identify patient- and site-level factors associated with site differences. RESULTS: End-of-study abstinence varied from 6.1% to 40% of patients by site. Only 6.7% of variability in abstinence outcome was accounted for by site and site did not significantly contribute ($p = 0.08$) to differential outcome variation. Among patient-level predictors, older age (OR = 1.40; 95% CI = 1.15, 1.71; p=0.0009), baseline abstinence (OR = 2.77; 95% CI = 1.73, 4.45; $p < 0.0001$), and among site-level predictors, higher annual clinic admissions (OR = 1.28; 95% CI = 1.03, 1.59; $p = 0.0251$) were significantly associated with increased likelihood of abstinence. When controlling for these factors in a HGLM, only age and abstinence at baseline remained significant, and the site-specific variance in abstinence decreased to 1.4%. CONCLUSION: These findings suggest that only a small amount of variability in abstinence outcomes among sites can be explained by a combination of patient- and site-level factors. Our findings support the case that variability between sites is natural, and the methodological recommendation that site be modeled as a random effect in multi-site clinical trials.

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First Name: Martina

Last Name: Pavlicova

Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: Columbia University Mailman School of Public Health

ID: 593
FDA and other US agency roles in the drug scheduling process for substances assessed under our international drug control treaties

James Hunter, U.S. Food and Drug Administration

Abstract Category: Theoretical/Commentary

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Other

Abstract: Aims: To provide an overview of the international drug scheduling process under the United Nations (UN) Conventions and the role of the Food and Drug Administration (FDA) in this process. Methods: The use and associated harms from the use of illicitly manufactured synthetic substances is a serious and growing global public health problem. The FDA, along with other federal agencies are involved in important efforts to control these substances internationally. Results: The United States (U.S.) is signatory to two UN drug control Conventions, the 1961 Single Convention on Narcotic Drugs and the 1971 Convention on Psychotropic Substances. These Conventions establish regulatory schedules for narcotic and psychotropic substances. The U.S. must implement international drug scheduling decisions, sometimes driving changes in domestic controls for substances under the Controlled Substances Act (CSA). The CSA provides the regulatory framework for the development of the U.S. position on international drug scheduling proposals. The roles of the Secretary of State, Attorney General [delegated to Drug Enforcement Administration (DEA)] and the Secretary of the Department of Health and Human services (HHS) [delegated to the Assistant Secretary for Health (ASH), with further delegation to the FDA, the Center for Drug Evaluation and Research (CDER) and the Controlled Substance Staff (CSS)] are described in 21 U.S.C. 811. CSS within FDA publishes required public notifications in the Federal Register and collects abuse and diversion related information as requested by the WHO; and coordinates the HHS interagency process for developing the U.S. position under the 1971 Convention. The DEA takes the lead for substances under 1961 Convention. Conclusions: In addition to ensuring that the American public has access to safe and effective drugs, the FDA has an important role in the international drug scheduling process and subsequent compliance with relevant international treaties as established in the CSA.

Financial Support: N/A

First Name: James

Last Name: Hunter

Degrees: MA MD Ph.D etc:: BS Pharm, MPH

Company Affiliation: U.S. Food and Drug Administration

ID: 594
Racial/ethnic disparities in referral to substance use disorder screening among justice-involved children

Amy Elliott, University of Florida

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Adolescent

Abstract: Aim: Youth who persistently abuse substances experience many problems, including academic difficulties, poor health outcomes, mental-health issues, poor peer relationships, and involvement in the juvenile justice system. Florida law and Florida Department of Juvenile Justice (FLDJJ) policy mandate that justice-involved children (JIC) who report current substance use be referred for assessment for substance abuse and addiction treatment services. However, we hypothesize that minority children will be less likely to be referred for assessment despite reporting current substance use to FLDJJ. Methods: Using cross-sectional data on 80,441 JIC from FLDJJ, we used multivariate logistic regression to investigate potential racial/ethnic disparities in referral for assessment among a subsample of JIC who self-reported current substance use to FLDJJ case workers (35,409). Gender, family income, age at first offense, types of drugs used (alcohol vs no alcohol use, marijuana use only versus other drug use), number of misdemeanor offenses, ever reporting problems with drugs, ever reporting a mental health diagnosis, and a child's total risk score were control variables. Results: Among those who reported current substance use, 15,225 (43.0%) were referred for substance abuse assessment. Black children were 31.9% less likely to be referred for assessment for treatment than White children after considering all control variables. In addition, Latina/o children were 12.6% less likely to be referred for assessment than White children. Conclusion: Despite clear laws and policies, cogent evidence shows racial disparities in referral for assessment for substance abuse and addiction among children who report current substance use. Black and Latina/o children are significantly less likely to be referred for assessment. Without a referral for assessment, these children are denied adequate healthcare services and potentially life-saving treatment. FLDJJ must work to close the racial-referral gap; widespread implementation of implicit bias training programs is recommended.

Financial Support: This research was supported by the NIDA T32 training grant at the UF Substance Abuse Training Center in Public Health from the National Institutes of Health (T32DA035167). The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

First Name: Amy

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Degrees: MA MD Ph.D etc:: MS

Company Affiliation: University of Florida

ID: 595
Neuromodulation of functional connectivity in emerging adults with cannabis use disorder

Michael Wesley, University of Kentucky, College of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Imaging

Abstract: Transcranial direct current stimulation (tDCS) holds promise as a neuromodulatory tool for studying and treating substance use disorder. However, research on the ability of tDCS to impact neural dynamics in drug abusing populations is lacking. Aim: Examine the ability of prefrontal cortex (PFC) tDCS to produce detectable changes in functional connectivity in emerging adults with cannabis use disorder (EA-CUD). This population was selected because emerging adults have higher rates of cannabis use and increased risk for cognitive deficits associated with chronic cannabis use during this key period of PFC development. Hypothesis: tDCS will alter connectivity of the dorsal lateral PFC (DLPFC) and the anterior cingulate cortex (ACC), two regions implicated in cognitive control. Methods: In this ongoing study, three EA-CUD (n=3; ages 18-25) received resting state functional magnetic resonance imaging scans (fMRI: 10m, eyes open) before and after sham or real tDCS applied over the left DLPFC (20min at 2mA, counterbalanced, double-blinded). Data were preprocessed using conventional spatiotemporal, denoising and standardizing procedures. Connectivity between regions of interest was examined for left DLPFC and ACC seeds ($p < 0$ .05, uncorrected). Support vector machine classification targeted post-sham and post-real scans (parameter grid search, 10-fold cross validation). Results: Real tDCS increased left DLPFC connectivity to the left orbital frontal cortex (p=0.0054), fusiform gyrus (p=0.0295) and right nucleus accumbens (p=0.0382) and decreased connectivity to the left middle frontal gyrus (p=0.0087), superior temporal gyrus (p=0.0093) and left/right middle temporal gyrus (p=0.0028/p=0.0317). Real tDCS increased ACC connectivity to the right amygdala (p=0.0262), inferior temporal gyrus (p=0.0285) and superior occipital cortex (p=0.0393). Post-sham versus post-real classification accuracy was 84% with voxels in the ACC contributing to model accuracy. Conclusion: PFC tDCS produced observable connectivity changes in EA-CUD subjects supporting its use as a neuromodulatory tool in this population.

Financial Support: NIH: UL1TR001998 NIH: R01DA036550 NSF: 1539068

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Last Name: Wesley

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: University of Kentucky, College of Medicine

ID: 596
Trauma-focused treatment for veterans in buprenorphine maintenance treatment for opioid use disorder

Sarah Meshberg-Cohen, VA Connecticut Healthcare System

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: Aims: Some literature suggests that people with substance use disorders and posttraumatic stress disorder (PTSD) have worse outcomes than comparison samples without PTSD. We considered the association between PTSD and buprenorphine retention in Veterans seeking buprenorphine treatment for opioid use disorders (OUD), and among those with PTSD, examined differences between those receiving versus not-receiving trauma-focused treatment. Methods: We conducted a retrospective chart review evaluation of 131 consecutive referrals to buprenorphine maintenance, with attendance gathered over a 6-month period after buprenorphine engagement. PTSD was identified by chart review and buprenorphine retention was defined as treatment engagement at 6-months post-admission. The sample was predominantly male (93.1%), White (80.2%), and over half (55.0%) were single/never married; mean age was 45.1 years. Chi-square analyses compared 6-month buprenorphine treatment dropout rates between Veterans with and without PTSD. Results: While nearly half of the sample (48.1%; n = 63) carried a PTSD diagnosis, only 30.2% of those with PTSD (n = 19) received any trauma-focused treatment while in buprenorphine treatment. There were no differences in buprenorphine retention between those with and without comorbid PTSD (p=.92). However, comparisons between PTSD with trauma-focused treatment, PTSD without trauma-focused treatment, and no PTSD, were significant, $\chi 2$ (2, N=131) =24.21, p
Financial Support: None

First Name: Sarah

Last Name: Meshberg-Cohen

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Company Affiliation: VA Connecticut Healthcare System

ID: 597
Does glucagon-like peptide 1 (GLP-1) receptor agonist stimulation reduce alcohol intake in patients with alcohol dependence?

Mette Klausen, University Hospital of Copenhagen

Abstract Category: Program Descriptions

Abstract Detail: Human

Drug Category: Alcohol

Topic: Treatment

Abstract: Aims: There is an urgent need for efficacious medical treatment of alcohol dependence. Glucagon-like peptide-1 (GLP-1) receptor stimulation has proven to reduce alcohol consumption in preclinical experiments with rodents and non-human primates. However, the effect of GLP-1 receptor agonists on alcohol reduction in humans with alcohol dependence has to our knowledge, not yet been investigated. Methods: The effect of the once-weekly GLP-1-receptor-agonist, exenatide will be investigated in a double-blinded, placebo-controlled, randomized clinical trial. One hundred and fourteen outpatients age 18-70 years will be randomized to treatment with either placebo or exenatide once-weekly for 26 weeks as a supplement to cognitive behavioural therapy. The primary endpoint is reduction in number of 'heavy drinking days' defined as days with an excess intake of 60/48 grams of alcohol per day (men and women, respectively), measured by the Time Line Follow Back (TFLB) method. Secondary endpoints include changes in total alcohol consumption, days without consumption, changes in brain activity and function, smoking status, cognition, measures of quality of life and changes in phosphatidylethanol (PEth) as a biomarker of alcohol consumption from baseline to follow-up at week 26. In addition to these clinical outcome parameters, we will explore the possible neurobiological underpinnings by use of functional Magnetic Resonance Imaging (fMRI) and the possible neuromolecular changes in striatal dopamine transporter (DAT) availability by use of the Single photon emission computed tomography (SPECT). Conclusions: Recruitment started August 2017 and will continue for 2 years. If successful, this could be a potential new treatment for alcohol dependence.

Financial Support: The study is financed by Region Hovedstadens Forskningsfond, Region Hovedstadens Psykiatri, Denmark and Fonden Novavì Denmark. The manufacturer of exanetide/Bydureon®, AstraZeneca A/S, has no financial interest or involvement in this project.

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Last Name: Klausen

Degrees: MA MD Ph.D etc:: MD, Ph.D-student

Company Affiliation: University Hospital of Copenhagen

ID: 598
Factors associated with inability to access health clinics among people who inject drugs in a Canadian setting with universal healthcare

Rupinder Brar, University of British Columbia

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Epidemiology

Abstract: Aim: Access to health clinics is vital to improving the health of people who use injection drugs (PWID) due to a high prevalence of co-morbidities. However, this population often faces significant challenges accessing care, and little is known about which barriers beyond the financial ones, are most associated with decrease in access. Therefore, we examined the prevalence and correlates of inability to access clinics among PWID in Vancouver, Canada, a setting with universal healthcare. Methods: Data was derived from three prospective cohorts of people who use drugs from Vancouver, Canada. We utilized multivariable generalized estimating equations to determine factors associated with self-reported inability to access health clinics in the preceding six months among participants who injected drugs. Results: Between June 2013 and May 2017, 430 (30.8%) of 1396 eligible participants (525 [38%] female) reported an inability to access a health clinic at some point during the study period. In multivariable analysis, factors independently associated with inability to access health clinics included: having ever been diagnosed with a mental health disorder (Adjusted Odds Ratio [AOR] 1.63, 95% CI:1.14-2.35), dealing drugs (AOR 1.6, 95% CI:1.15-2.22), emergency room use (AOR 1.51, 95% CI:1.13-2.02), being male (AOR 0.67, 95% CI:0.48-0.93) and being HIV-positive (AOR 0.47, 95% CI:0.3-0.72). Conclusion: We found almost one-third of our sample of PWID were unable to access health clinics even in a setting with universal healthcare. Notably, female PWID were significantly more likely to have difficulty accessing health clinics highlighting the importance of considering gender in the delivery of health services. Further work to treat co-occurring mental illness and connect people with community care who present to the emergency room may improve access to care for PWID.

Financial Support: This work was supported by the US National Institute on Drug Abuse (NIDA) at the US National Institutes of Health (NIH; U01-DA038886 and U01-DA021525), as well as the Canadian Institutes of Health Research (CIHR; PJT-152924). This research was undertaken, in part, thanks to funding from the Canada Research Chairs program through a Tier 1 Canada Research Chair in Inner City Medicine which supports EW. M-JM is supported in part by the NIH (U01-DA021525), a Scholar Award from the Michael Smith Foundation for Health Research (MSFHR) and a CIHR New Investigator award. KD is supported by a MSFHR/St. Paul's Hospital Foundation-Providence Health Care Career Scholar Award and a CIHR New Investigator Award. KH is supported by the St. Paul's Hospital Foundation, a CIHR New Investigator Award (MSH-141971) and MSFHR Scholar Award. SN is supported by a Health Professional Investigator Scholar Award from MSFHR.

First Name: Rupinder

Last Name: Brar

Degrees: MA MD Ph.D etc:: MD

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ID: 599
Do incentives and alerts have a modifying effect on the impact of clients' travel time on continuity after discharge?

Constance Horgan, Brandeis University, Heller School for Social Policy and Management

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Treatment

Abstract: Aim: Continuity into treatment after withdrawal management or residential treatment is associated with improved outcomes. We examined the influence on continuity of care of travel time and whether financial incentives and weekly alerts focused on treatment agencies has a modifying effect on the impact of travel time. Methods: From 10/2013-12/2015, we separately randomized detoxification and residential substance abuse treatment programs in Washington State to earn financial incentives for meeting performance goals, receive weekly alerts, both or control. Travel time was driving distance from clients' zip codes of residence to agency zip codes. We used logit regression to evaluate the influence on continuity into treatment within 14 days of discharge of travel time to treatment and travel time plus number of options for continuity, as well as to explore any mitigating impact of incentives or weekly alerts. Results: Many clients traveled long distances for treatment, and some do not have options for continuity close to where they live. Half of rural clients travel > 90 minutes to detoxification or residential treatment and >138 minutes for residential treatment. However, three quarters of rural clients have a potential site for continuity services within 30 minutes. For detox clients, longer travel time to actual site of treatment associated with higher continuity after detoxification and travel time over 60 minutes to potential sites of follow-up associated with lower continuity. For residential clients, alerts and incentives offer a potential for protecting the lower continuity associated with longer travel to actual treatment. Conclusion: Previous research showed minimal impact of incentives or alerts on continuity into treatment. Considering the potential barrier of travel time may be a promising approach to understanding continuity into treatment and outcomes.

Financial Support: This research was supported by the National Institute on Drug Abuse (NIDA) of the National Institutes of Health (R01DA033468) and is a component project of the NIDA-supported Brandeis/Harvard Center to Improve System Performance of Substance Use Disorder Treatment (P30 DA035772).

First Name: Constance

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Degrees: MA MD Ph.D etc:: Sc.D.

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Contact Title: Director

ID: 600
Association between drug use history and non-fatal overdose: A cross-sectional study of community members who use prescription opioids non-medically in West Virginia

Kelly Gurka, University of Florida

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Prevention

Abstract: Aim: To examine the association between substance use history and overdose among West Virginia residents who endorsed non-medical prescription opioid (NMPO) use. We hypothesized participants who initiated NMPO use younger, transitioned to injecting prescription opioids, or transitioned to heroin would be more likely to overdose. Methods: We analyzed data from a community-based participatory research study, which interviewed residents 18 years and older who endorsed prior-90-day NMPO use (2014-2015). Participants were queried about overdoses; lifetime drug use, including age of initiation and routes of administration; and socio-demographics. Descriptive statistics were calculated and logistic regression models fit to assess the association between drug use history and overdose. Results: Among the 169 participants, the mean age was 37 years (SD=11); 55% were male; and the majority were non-Hispanic white (92%), unemployed (82%), and received at least a high school education (69%). Among those who reported whether they had experienced overdose (n=168, 99%), 36 (21%) reported ever experiencing overdose, eight (23%) of whom reported experiencing overdose in the last year. Participants who ever used benzodiazepines and illicit drugs (other than heroin) were more likely to overdose (OR = 9.85; 95% CI: 1.29, 75.03 and OR = 16.33; 95% CI: 2.16, 123.28; respectively). Every year delay in initiation of NMPO use resulted in 9% reduced odds of overdose (adjusted (a) OR = 0.91; 95% CI: 0.84, 0.98). Participants who ever injected prescription drugs were 8 times as likely to overdose (aOR = 7.84; 95% CI: 2.99, 20.55). Though transitioning to heroin appeared to increase likelihood of overdose (OR = 2.84; 95% CI: 1.31, 6.17), the effect was attenuated when controlling for other factors (aOR = 1.17; 95% CI: 0.46, 3.02). Conclusion: Interventions and harm reduction strategies that delay initiation of NMPO use or transition to injection may reduce the incidence of overdose in this population.

Financial Support: National Institute of General Medical Sciences U54GM104942 and National Institute on Drug Abuse T32DA035167

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Degrees: MA MD Ph.D etc:: MPH, PhD

Company Affiliation: University of Florida

ID: 601
Vulnerability to higher stress levels in people who use drugs linked to maladaptive coping mechanisms

Divya Seth, National Institute of Drug Abuse, National Institutes of Health

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Treatment

Abstract: AIM Stress has been correlated with craving in people with substance use disorders and may even predict treatment outcomes. We examined stress exposure in a longitudinal cohort of people who use and people who do not use drugs. METHODS Participants were divided into 4 groups based on drug use: non-drug-use group (NDU, n=228), current opioid/stimulant use group (COSU, n=283), current marijuana use group (CMU, n=87), and unclassified (UNC) use group (a heterogeneous group including people with past drug use, alcohol use, or other drug use disorders; n=115). In Visit 1, participants completed the Life Events Checklist (LEC), Life Events Questionnaire (LEQ), the Perceived Stress Scale (PSS), the Hassles and Uplifts Scale, Personality Inventory (NEO-PI), and the COPE Inventory. Individual stress questionnaire scores were then compared across drug use categories. RESULTS The COSU and CMU had scores significantly higher than the NDU on the LEC, LEQ, and Hassles scales (p
Financial Support: National Institute on Drug Abuse, Intramural Research Program

First Name: Divya

Last Name: Seth

Company Affiliation: National Institute of Drug Abuse, National Institutes of Health

ID: 602
Opioid education and naloxone distribution programs for residents and staff of abstinence only recovery homes may decrease risk of opioid overdose

Curtis Bone, Yale University School of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Prevention

Abstract: AIM Opioid overdose is the leading cause of accidental death in the United States and individuals who opt for abstinence only recovery are at increased risk for overdose. Opioid education and naloxone distribution (OEND) programs mitigate overdose risk yet OEND programs for abstinence only recovery residents are not well described. The aim of this study is to determine the need and acceptability of an OEND program for people housed in abstinence only recovery residences. METHODS We utilized previously published OEND curricula to develop an education intervention and partnered with leadership from a network of recovery residences in Connecticut as well as local pharmacists to coordinate OEND training events that included onsite naloxone distribution. Trainings targeted recovery residents and program staff; all participants completed pre- and post- knowledge and attitude assessments. An onsite community pharmacist dispensed naloxone after each training. We conducted the first training on June 14th 2017, and both data collection and trainings are on-going. RESULTS As of December 1, 2017, we have conducted four OEND events that involved 11 recovery residences and 74 people. Among those trained, 43% were female, 28% younger than 22 and 39% above 35 years of age. Individuals in recovery constituted 75% of trainees and 25% were staff. Pre-test, participants , on average, answered 49.6% of the knowledge items correctly while 76.6% of participants felt confident in their ability to deal effectively with an overdose post-training. All houses (100%) were equipped with naloxone after trainings and 37 participants received kits. There were three in-house overdoses reported following the first training and naloxone was delivered in each instance. Overdose reversal was successful in 2 of these 3 cases. CONCLUSION Abstinence only recovery residences house a high-risk population for opioid overdose. OEND programs conducted for individuals living in recovery residences and their staff may decrease opioid related deaths.

Financial Support: The project described was supported by R25DA033211 from the National Institute on Drug Abuse

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ID: 603
Increases in binge drinking concentrated among cigarette smokers in the US, 2002-2014

Renee Goodwin, The City University of New York and Columbia University

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Alcohol

Topic: Epidemiology

Abstract: Aim: Binge drinking, a form of problematic and potentially dangerous alcohol use, is on the rise in the United States (US). The prevalence of alcohol use is higher among cigarette smokers, compared with non-smokers. Yet, little is known regarding trends in binge drinking prevalence among smokers, relative to non-smokers, and whether trends in binge drinking have changed over time by cigarette smoking status. Method: The present study investigated the relationship between cigarette smoking and past-month binge drinking in the US, and examined the prevalence of past-month binge drinking among daily, non-daily, and non-smokers from 2002 to 2014 among individuals ages 12 and older in the US overall and stratified by demographic characteristics. Results: Past-month binge drinking was reported among approximately (51.2%) half of non-daily smokers and among over one in three (38.8%) daily smokers compared with approximately one in ten (11.4%) non-smokers. After adjusting for demographics, a significant increase in binge drinking from 2002 to 2014 was observed among both non-daily smokers (OR=1.01, 95% CI [1.00, 1.02], t=2.29, p=0.023) and non-smokers (OR=1.02, 95% CI [1.01, 1.02], t=4.76, p
Financial Support: NIH/NIDA grant #20892

First Name: Renee

Last Name: Goodwin

Degrees: MA MD Ph.D etc:: Ph.D., M.P.H.

Company Affiliation: The City University of New York and Columbia University

ID: 604
Repeated cocaine and novel environmental exposures have divergent effects on locus coeruleus cFOS expression and forebrain region monoamine concentrations

Michael Lisieski,

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Stimulants

Topic: Neurobiology

Abstract: Aim: Published work from our laboratory has shown that chronic administration of cocaine causes a persistent hyperexploratory response in novel environments. We hypothesized that this response is associated with increased locus coeruleus (LC) reactivity to novel environments. We used dual fluorescent in-situ hybridization-immunohistochemistry (FISH-IHC) to analyze novelty-induced cFOS expression in the LC and high-pressure liquid chromatography (HPLC) to measure dopamine (DA) and norepinephrine (NE) concentrations in key forebrain regions following exposure to cocaine and/or novel environments. Methods: Male Sprague-Dawley rats were administered cocaine or saline thrice daily for 14 days, followed by a 14-day drug-free period. Half of these rats were tested in two novel environments: an open field and elevated plus maze. After behavioral testing, hindbrains were collected to analyze cFOS mRNA expression in the LC using FISH-IHC, and anterior cingulate cortex (ACC), nucleus accumbens (NAC), amygdala (AMY), and ventral tegmental area (VTA) were dissected for HPLC analysis. Results: Replicating our previous work, cocaine exposure increased exploration of novel environments, particularly anxiogenic areas. Novelty exposure increased LC cFOS expression, increased ACC NE, and decreased VTA DA. Cocaine exposure decreased AMY DA, but had no effect on LC cFOS expression or NE in any brain region. No interactions between cocaine and novelty were found. Open arm exploration was positively correlated with LC cFOS and ACC and NAC NE concentration, but negatively correlated with AMY DA concentration. Conclusion: Our findings confirm that exposure to novel environments increases LC activity and NE in the ACC, that long-term exposure to cocaine dysregulates AMY DA, and that disinhibited exploration in novel environments is correlated with NE and DA in forebrain regions that modulate risk-taking and avoidance behavior. Further studies investigating the effects of cocaine on brain catecholamine systems are important in understanding the long-lasting effects of cocaine on brain function.

Financial Support: This work was funded by the Wayne State University School of Medicine MD/PhD program (MJL), the Wayne State University School of Medicine Department of Psychiatry and Behavioral Neurosciences (MJL, SAP), National Institutes of Health DA-042057 (SAP), and U.S. Department of Veterans Affairs RX-001511 (ACC).

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Last Name: Lisieski

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ID: 605
Associations between unprotected sex, psychiatric comorbidity, and substance use frequency in a cohort of HIV-infected and at-risk women with a history of housing instability

Meredith Meacham, University of California San Francisco

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: AIDS/Immune

Abstract: Aim: Constrained survival choices as well as high levels of comorbid substance use and psychiatric disorders are common among impoverished women, potentially elevating transmission risk of HIV and other STIs through engagement in high-risk sexual behaviors. Within a cohort of community-recruited unstably housed women, we sought to determine the independent associations of known correlates of high-risk sex and of psychiatric diagnoses and substance use frequency with unprotected sex over time. Methods: Biologically female adult women with a history of housing instability were recruited from community settings and followed biannually for three years (N=291). HIV-infected women were oversampled (50%). Generalized estimating equation logistic regression analyses were used to determine associations between unprotected sex and psychiatric comorbidity (Diagnostic Interview Schedule), substance use frequency, and social determinants of health. Results: At baseline, 97% of women had at least one substance use or psychiatric disorder, with a median of 8 psychiatric diagnoses (IQR 5-11). Most common diagnoses were major depression (66%), cocaine use disorder (65%), alcohol use disorder (63%), and post-traumatic stress disorder (51%). About 42% of women reported unprotected sex within 6 months of the baseline visit and 65% reported unprotected sex in the past 6 months at any of their biannual visits. In adjusted longitudinal analyses, the odds of having unprotected sex were greater for women with panic attack diagnosis (AOR=1.56), < daily alcohol use (vs. no use) (AOR=1.47), sex exchange (AOR=3.04), and a primary partner (AOR=3.80), and lower for younger (AOR=0.96) and HIV-negative (AOR=0.70) women. Conclusion: In addition to age, sex exchange, HIV status, and having a primary partner, targeted HIV and STI prevention efforts for marginalized women should specifically address panic attack, which is important given high rates of victimization among homeless women, and infrequent substance use, which may be harder to detect than an alcohol use disorder.

Financial Support: R01 DA015605, K24DA039780, T32 DA007250.

First Name: Meredith

Last Name: Meacham

Degrees: MA MD Ph.D etc:: PhD, MPH

Company Affiliation: University of California San Francisco

ID: 606
Oprm1 A112G, a single nucleotide polymorphism, alters expression of stress-responsive genes in multiple brain regions in male and female mice

Devon Collins, The Rockefeller University

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Opiates/Opioids

Topic: Genetics

Abstract: Aims: OPRM1 A118G, a functional human mu-opioid receptor polymorphism, is associated with drug dependence and altered stress responsivity in humans (Bond et al., 1998). Many of the long-term, stable effects of drugs and stress may stem from changes in gene expression. Mu-opioid receptor signaling can regulate many cellular processes, including gene expression. A mouse model bearing an equivalent polymorphism (Oprm1 A112G) was generated and studied (Mague et al. 2009). Mice homozygous for the G112 allele show differences in opioid- and stress-related phenotypes. The aim of this study was to identify Oprm1 genotype-dependent changes in the basal expression of a hypothesis-driven selection of 24 endogenous opioid system and stress-responsive neuropeptide and receptor genes in multiple brain regions in male and female Oprm1 A112G mice. Methods: Drug-naïve, stress-minimized, male and female mice homozygous for either the G112 variant allele or the wild-type A112 allele of Oprm1 were rapidly sacrificed. The caudoputamen, nucleus accumbens, hypothalamus, hippocampus, and amygdala were dissected from each. Total mRNA from each region was extracted for cDNA synthesis and gene expression was measured using a custom qPCR array (Qiagen). Results: We detected genotype-dependent changes in gene expression of two genes in caudoputamen, one gene in nucleus accumbens, six genes in hypothalamus, and four genes in hippocampus. We also detected sex-dependent as well as sex-by-genotype interaction effects on gene expression. Conclusion: Our data demonstrate that the G112 allele of Oprm1 leads to changes in the basal expression of genes encoding multiple, interacting opioid and neuropeptide systems. Changes in the regulation of these genes by mu-opioid receptors encoded by the G112 allele may underlie some of the behavioral consequences of this polymorphism observed in mice.

Financial Support: This work was supported by the Dr. Miriam and Sheldon G.Adelson Medical Research Foundation (MJK, MR, YZ), the David Rockefeller Graduate Program (DC).

First Name: Devon

Last Name: Collins

Company Affiliation: The Rockefeller University

ID: 608
Substance use and sexual assault perpetration: The role of mindfulness and empathy

Quyen Ngo, University of Michigan Injury Prevention Center

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Treatment

Abstract: Aims: Sexual assault has numerous adverse effects on individual well-being and significant public health and economic consequences. Drug and alcohol use are co-occurring risk behaviors with sexual assault perpetration. To date, there is little information regarding promotive factors that may help to reduce the likelihood of sexual assault perpetration. In the present study, we examine the potential moderating role of mindfulness and empathy with regard to the association between substance use and sexual assault perpetration (completed and attempted). Methods: Data were collected from a national sample recruited via social media advertisements. The sample included 3,624 emerging adults (EAs; 18-25 years; average age 20.7, SD=2.3) who were 51% male and whose racial background comprised: 69% Caucasian, 7% Black, and 5% Asian-American, 21% of whom identified as Latinx/Hispanic. Attempted sexual assault (ASA) was reported by 3% and completed sexual assault (CSA) was reported by 7%. Results: Multinomial logistic regression analyses revealed that, compared to non-perpetrators, those reporting ASA were significantly more likely to use alcohol (OR=1.29; 95% CI=1.07-1.54); those with CSA were more likely to drink alcohol, use marijuana, and use illicit drugs (OR=1.16; 95% CI=1.02-1.31 and OR=1.11; 95% CI=1.02-1.21, OR=1.31; 95% CI=1.09-1.58, respectively). Trait mindfulness and empathy were negatively associated with ASA (OR=0.96; 95% CI=0.94-0.98 and OR=0.95; 95% CI=0.92-0.99, respectively) and CSA (OR=0.97; 95% CI=0.95-0.98 and OR=0.97; 95% CI=0.94-0.99). Conclusions: There appear to be distinction patterns of substance use in ASA vs. CSA. Mindfulness and empathy may be important aspects for interventions to reduce sexual assault perpetration.

Financial Support: NIAAA K23AA022641; NCATS 2UL1TR000433; UM Injury Prevention Center; CDC R49CE002099; NICHD R03HD087520; NIDA K23DA036008

First Name: Quyen

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Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: University of Michigan Injury Prevention Center

ID: 609
Targeted noninvasive delivery of novel clathrin-based superparamagnetic iron oxide nanoparticles for magnetic resonance imaging of dopamine transporters in mouse brain

Jae Kim, McLean Hospital, Harvard Medical School

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Stimulants

Topic: Imaging

Abstract: Aim: Magnetic Resonance Imaging (MRI) offers high spatial resolution but has poor sensitivity for visualization of molecular targets. Superparamagnetic iron oxide (SPIO) contrast agents along with antibodies are used to improve MRI sensitivity and molecular targeting, but they cannot cross an intact blood-brain-barrier (BBB) limiting their use. Our goal was to enable MRI molecular targeting using novel clathrin-based nanoprobes carrying SPIO and antibodies, which noninvasively pass an intact BBB, to target dopamine transporters (DATs). Methods: Clathrin triskelia (CT)-nanoprobes were synthesized by conjugating anti-DAT antibody and SPIO to CT using polyethylene glycols (PEGs) at 1:1:1 molar ratio. Adult male mice were given saline or CT-nanoprobes intranasally (68 pmol, 50 μL). 4 hours later, they were fixed and perfused and their brains were collected for immunohistochemistry or ex-vivo MRI. Voxel-wise R2* relaxation rates were obtained using a series of gradient-echo images (TR=1.5 s, TE=3.2, 4, 5, 6, 7, 8, 9, 10 ms; 128x128 in –plane matrix; 0.2 mm resolution; 64 slices at 0.5 mm thickness; 7 averages). R2* values in the striatum (STR) and visual cortex (vCTX), a control region with low DAT expression, were calculated. Results: The iron stained brain slices showed an accumulation of CT-nanoprobes in brain regions rich in DAT (e.g., STR). MRI studies revealed that R2* values were significantly higher in the STR than vCTX ($p=0.0051$) in animals that received CT-nanoprobes, but not in saline treated animals. CT-nanoprobes significantly increased R2* in the STR compared to saline ($p=0.0002$) without significantly altering R2* in vCTX. Conclusion: CT-nanoprobes noninvasively delivered SPIO contrast agents along with anti-DAT antibody to the mouse brain, enabling detection of DAT using MRI. These preliminary results merit further investigation into the use of clathrin as a new theranostic for noninvasive molecular brain imaging and targeted drug delivery.

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First Name: Jae

Last Name: Kim

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: McLean Hospital, Harvard Medical School

ID: 610
Prevalence of clinical insomnia in a residential substance use disorder population

Denis Antoine, Johns Hopkins University School of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Behavior

Abstract: AIM: Residential facilities are a common entry point into treatment for substance use disorders (SUD). In early SUD recovery, sleep disturbances may arise from substance intoxication, withdrawal, or a primary sleep disorder. The early identification of clinical insomnia in a residential setting could help to improve relapse rates and increase treatment retention. However, the abuse potential and likelihood of drug-drug interactions of many medications utilized for sleep disturbances make a non-pharmacological approach to insomnia such as cognitive behavioral therapy more appealing. To demonstrate the need for targeted sleep interventions in a residential SUD setting, we characterized insomnia symptoms of clients entering a treatment facility. METHODS Insomnia Severity Index (ISI) scores were collected from clients entering a SUD treatment clinic associated with a residential facility. Participants with data from intake and 3 months (N=34) are reported here. A paired t-test was performed between the two timepoints. RESULTS: 35% of clients had clinical insomnia (ISI score ≥8) at intake, and 12% had clinical insomnia at 3 months ($p < 0$ .01). However, 24% of clients had a higher ISI rating at the 3-month mark compared to intake. CONCLUSION: The present data demonstrate that insomnia symptoms are common in a residential SUD treatment population and that insomnia occurs beyond the expected duration of drug intoxication or withdrawal. These outcomes suggest a utility for non-pharmacological treatment of insomnia in a residential SUD setting. Future research should investigate other forms of sleep disturbance beyond insomnia for this population, and also test the efficacy of non-pharmacological interventions such as cognitive behavioral therapy for insomnia.

Financial Support: NIDA K24DA023186

First Name: Denis

Last Name: Antoine

Degrees: MA MD Ph.D etc:: MD

Company Affiliation: Johns Hopkins University School of Medicine

ID: 611
Variants in stress-signaling genes NR3C1 and FKBP5 modulate opioid abstinence during buprenorphine (BUP) stabilization and dose tapering

Mark Greenwald, Wayne State University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Genetics

Abstract: Background/Aim: Stress-reactivity, mediated by the hypothalamic-pituitary-adrenal axis and glucocorticoid receptors (GRs), can alter drug use. However, contribution of stress-system genetic variation to drug use during opioid pharmacotherapy remains unknown. This pilot study determined in heroin-dependent volunteers whether variants in two GR signaling genes, NR3C1 (encodes GR) and FKBP5 (regulates sensitivity of GR) modulate opioid abstinence during BUP stabilization and dose-tapering. Methods: Heroin-dependent, out-of-treatment volunteers were genotyped (FKBP5 rs1360780 and rs3800373, NR3C1 rs6877893) and phenotyped for drug use during screening for 3 similar human laboratory inpatient studies. Participants were stabilized for two outpatient weeks on sublingual BUP 8mg/day; 3x/week urine drug screening (UDS) was conducted and self-reported drug use was measured. Following 2.5 weeks of inpatient participation (continuing on BUP 8mg/day), participants underwent a double-blind BUP dose-taper (4mg/day, 2mg/day and 0mg/day during weeks 1, 2 and 3, respectively) with an opioid-abstinence incentive; UDS and self-reported drug use were measured. Results: Among BUP-stabilized participants (n=32), FKBP5 1360780 (CC vs. T-carrier) variation predicted log10 percent days opioid abstinent, controlling for race, adjusted r2 = .27. CC homozygotes achieved more log10 percent days abstinent than T-carriers (raw percentages were 21% vs. 7%), $F(2,48)=4.43$, $p=.017$. Among participants who entered BUP-tapering (n=25), NR3C1 (A/G) variation predicted number of days to opioid lapse during 3-week BUP dose-tapering, controlling for race, adjusted r2 = .44. Mean (SD) days to opioid lapse were 20.6 (5.1), 18.8 (8.6), and 9.9 (4.3) for AA, AG and GG groups, respectively, $F(2,24)=5.89$, $p=.009$. Survival curve analysis confirmed an effect of the protective A-allele: log-rank (Mantel-Cox) chi-square=12.23, $p=.002$. Conclusion: Allelic variation in stress-system signaling genes FKBP5 and NR3C1 modulated opioid abstinence during BUP stabilization and dose-tapering in heroin-dependent individuals. Further studies are needed to replicate these preliminary associations and to establish whether this information could be clinically useful.

Financial Support: NIH/NIDA 2 R01 DA015462, Helene Lycaki/Joe Young Sr. Research Funds (State of Michigan), and Detroit Wayne Mental Health Authority.

First Name: Mark

Last Name: Greenwald

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Wayne State University

Contact Title: Professor and Director

ID: 612
U.S. national data on prevalence and correlates of 8th and 10th grade runaway youth, 2005-2016

Berenice Castillo, University of Michigan

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Adolescent

Abstract: AIM: Running away from home is a potentially dangerous action for adolescents that can adversely affect their development, health, and well-being. With few exceptions, detail regarding the prevalence and correlates of running away is lacking (Toro, Lesperance, & Braciszewski, 2011). This study is designed to address this gap with U.S. national data spanning the last decade. Methods: US nationally representative samples of 8th and 10th graders from the NIDA-funded Monitoring the Future study, between years 2005 and 2016 (N= 126, 259), were used for analyses. Multivariable logistic regressions were conducted to examine the correlates of running away among 8th and 10th graders, controlling for grade level, gender, race/ethnicity, and parent education. Running away from home for more than 24 hours in the past 12 months was measured as 0='Never' or 1='Once or more'. Results: Overall, between 2005 and 2016, 7.3 % of 8th and 10th graders report running away. The prevalence of running away has declined from 8.37% to 5.42% between 2005 and 2016. Females (8.0%) and Latinos (9.4%) report higher rates of running away than males and White and Black adolescents, respectively. Most of the predictors were significantly related to running away including parental, peer, and school predictors as well as internalizing and externalizing predictors. Additionally, the odds of running away are significantly higher when youth report alcohol, marijuana, and cigarette use (odd ratio: 1.2, 1.4, and 1.2 at p
Financial Support: NIDA

First Name: Berenice

Last Name: Castillo

Degrees: MA MD Ph.D etc:: MSW

Company Affiliation: University of Michigan

ID: 613
Quantification of unconditioned behaviors induced by kappa agonists in rhesus monkeys: Effects of signaling bias

Sally Huskinson, University of Mississippi Medical Center

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Opiates/Opioids

Topic: Behavior

Abstract: Aim Mu-opioid agonists are among the most effective treatments for pain, but they produce significant side effects. Kappa-opioid agonists are antinociceptive, and evidence indicates that their side effects can be ameliorated through selective intracellular signaling (i.e., biased signaling). The aim of this study was to determine behavioral profiles for a mu agonist and several kappa agonists that vary in signaling bias. We predicted kappa agonists would produce profiles distinct from a mu agonist and that kappa agonists biased towards G-protein signaling would produce a distinct profile from traditional kappa agonists. Methods Male rhesus monkeys were administered doses of oxycodone and kappa agonists with varying degrees of G-protein signaling bias: U50,488, unbiased; salvinorin A, unbiased; nalfurafine, biased; triazole 1.1, biased. Using quantitative behavioral observation techniques, species-typical and drug-induced behaviors were recorded by trained observers blinded to drug conditions. Results All drugs decreased environment-directed behavior (locomotion, tactile-oral exploration, foraging). U50,488 and nalfurafine induced rest/sleep posture in at least one subject, and salvinorin A induced rest/sleep posture in all subjects. Scratching was increased by oxycodone and, to a lesser extent, triazole 1.1. Scratching was unchanged by U50,488, salvinorin A, or nalfurafine. Facial rubbing (purported to indicate gastrointestinal distress), was increased by oxycodone and, to a lesser extent, salvinorin A and nalfurafine. Facial rubbing was unchanged by U50,488 and triazole 1.1. Conclusion Not surprisingly, all kappa agonists had a distinct profile from oxycodone. However, triazole 1.1 had a profile distinct from the other kappa agonists apparent in triazole 1.1 induced scratching and a lack of sedative-like effects. These results suggest that nuances along the spectrum of bias, even within biased agonists, produce distinct effects relevant to side-effect profiles for kappa agonists.

Financial Support: NIDA R01 DA039167 to KBF

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ID: 614
The relationship between quantity of cannabis use and prescription opioids misuse in medical cannabis patients

Mark IIgen, University of Michigan

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Epidemiology

Abstract: Aims: Recent ecological studies have found that states with legalized medical cannabis experienced decreases in certain indices of opioid-related adverse outcomes with some suggesting that cannabis legalization may be a path to reducing harms associated with opioids. However, research on this topic is still quite preliminary. In this study, we evaluate the relationship between cannabis use and opioid misuse both concurrently and over time in a cohort of adults seeking medical cannabis for pain. Methods: Potential study participants were adult patients (≥ 21 years old) who were recruited during an appointment to obtain medical cannabis certification for the first time or to renew an existing medical cannabis card. After completing a screening assessment, 800 individuals who reported chronic pain were recruited into a cohort study and followed every six months. The present analyses were limited to the 433 individuals who reported opioid use at baseline. We examined the association between frequency of baseline cannabis use and self-reported opioid misuse at baseline, 6-, and 12-months. Results: Opioid misuse was common in the sample and decreased, on average over the course of the follow-up ($p < .001$). A consistent u-shaped association was found between baseline quantity of cannabis use and extent of opioid misuse. In particular, the two groups with the greatest opioid misuse were those with the highest and lowest quantity of baseline cannabis use. Those with moderate amounts of baseline cannabis use reported the least opioid misuse. This pattern was found both cross-sectionally as well as longitudinally. Conclusions: In medical cannabis patients with pain, opioid misuse was common and related to extent of cannabis use. Ongoing analyses will explore the interrelationships between trajectories of cannabis and opioid misuse.

Financial Support: NIDA R01 DA033397

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ID: 615
Stereoselective effects of the second generation 'bath salt' a-pyrrolidinopentiophenone (α-PVP): Assessments of aversion, locomotor activity and thermoregulation

Katharine Nelson, The American University

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Club/Designer Drugs

Topic: Behavior

Abstract: AIM To address if the aversive effects of the enantiomers of α-PVP differ, the present studies examined the ability of racemic α-PVP and its S(-) and R(+) enantiomers to induce conditioned taste avoidance, thermoregulatory changes and locomotor activity and stereotypies. METHODS Based on a dose of α-PVP (3 mg/kg) effective in inducing taste avoidance (see Nelson et al., 2017), adult male Sprague-Dawley rats (n = 32) were given a novel saccharin solution and injected with 3 mg/kg of S(-), R(+) or racemic α-PVP (IP). Rats were also assessed for α-PVP-induced thermoregulatory effects, general motor activity and stereotypies. RESULTS Subjects injected with racemic and S(-) α-PVP drank less saccharin than those injected with vehicle and R(+): Group [$F(3, 28) = 13.353$, $p = 0.000$], Trial [$F(3, 26) = 9.341$, $p = 0.000$], Group x Trial interaction [$F(9, 84) = 5.041$, $p = 0.000$]. Only Groups Racemic and S(-) displayed significant increases in temperature following α-PVP: Group [$F(3,26) = 3.571$, $p = 0.028$], Time [$F(9, 18) = 5.288$, $p = 0.001$], Group x Time interaction [$F(27,60) = 2.632$, $p = 0.001$]. Groups Racemic and S(-) displayed significant increases in activity following α-PVP compared to Groups Vehicle and R(+): Group [$F(3, 28) = 48.114$, $p = 0.000$], Time [$F(11,18) = 15.337$, $p = 0.000$]. Both Groups Racemic and S(-) showed more stereotypies than Groups Vehicle and R(+): Group [$F(3,28) = 7.920$, $p = 0.001$], Group x Time interaction [$F(33,60) = 1.906$, $p = 0.015$]. CONCLUSION The effects of α-PVP were stereospecific and functionally identical across measures of taste avoidance, temperature, locomotor activity and stereotypies where the S(-) enantiomer was indistinguishable from the racemic mixture. R(+) never differed from vehicle controls, suggesting that for these behavioral and physiological endpoints, the S(-) enantiomer mediates the effects of α-PVP (similar to that seen with MDPV).

Financial Support: This research was supported by a grant from the Mellon Foundation to Anthony L. Riley. The authors have no financial relationships that are related to the topic of this presentation.

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ID: 616
Systematic review and meta-analysis on the dimensions of anger in men using psychoactive substances

Helen Laitano, Luiz Englert Fundação

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Drug Interactions

Abstract: Objective: To investigate the association between anger / aggression and use of psychoactive substances through systematic review and meta-analysis. Method: Meta-analysis of observational studies and systematic review of the literature (MOOSE Guidelines). The following electronic databases were searched: MEDLINE and EMBASE, LILACS, PSYCINFO. A search was conducted in the electronic databases, complemented by manual search of bibliographical data of the large area of health and specifics of Psychology. Results: This meta-analysis included 10 cross-sectional observational studies, including users of psychoactive substances compared to non-users of psychoactive substances. Participants were included in the meta-analysisf 13646 male. The 10 studies identified a significant association of anger to substance users. Effect sizes were calculated separately by means of the difference between the means of the user groups and non-users with higher anger scores for users of psychoactive substances. The meta-analysis of the dimensions of anger: trait (+1.65), control (-1,30), expression (+1,65) and anger in (+0,56). The meta-analyzes of the type of substances alcohol (+4.61), cocaine (+5.34), multiple substances (+3,40), heroin (+4.59), marijuana (+4,22). Conclusions: The most common variables associated with anger, aggression, violence, and substance use are the psychopharmacological effects of psychoactive substances that may accentuate the potential for anger / aggression. The treatment approach focused on anger management and relapse prevention can be included in the patient's treatment plan that presents difficulties in dealing with conflicts, greater impulsiveness and aggressiveness in social relations with the use of alcohol and other drugs.. The treatment approach focused on anger management and relapse prevention can be included in the patient's treatment plan that presents difficulties in dealing with conflicts, greater impulsiveness and aggressiveness in social relations with the use of alcohol and other drugs. Keywords: Alcohol, cocaine, heroin, marijuana, inhalants, tobacco, substance use, substance addiction, drug dependence, Anger.

Financial Support: Own financial resources.

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Degrees: MA MD Ph.D etc:: MD

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ID: 617
Aberrant functional connectivity in large-scale brain networks distinguishes cocaine patients from controls and is linked to drug-use outcomes

Paul Regier, University of Pennsylvania

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Stimulants

Topic: Imaging

Abstract: AIM: Functional connectivity (FC) between large-scale brain networks has become a useful tool for identifying potential biomarkers of addiction. Three networks have been the focus: the Default Mode Network (DMN), Salience Network (SN), and Executive Control Network (ECN). Evidence suggests addiction patients have reduced connectivity between these networks, and that, in particular, SN engagement or disengagement of ECN or DMN, respectively, may be associated with future drug use. We used these three networks to examine FC in cocaine patients compared to controls. We hypothesized that cocaine patients would exhibit reduced FC between SN-DMN and/or SN-CEN, and aberrant FC would predict drug-use outcomes METHODS: The present study included 38 healthy and 34 cocaine-dependent subjects. Twenty-five independent components were calculated from resting fMRI data. To differentiate controls from patients, a classifier was built based on the DMN, SN, and ECN. Subsequently, a whole-brain FC map was generated, and connections between networks were tested. These maps were compared between patients and controls as well as between controls and drug-use outcome groups among cocaine patients. RESULTS: Whole-brain FC within the DMN, SN, and ECN was reduced in cocaine patients ($p < 0$ .05, FDR). Between networks and compared to controls ($p < 0$ .05, Bonferroni), patients had a weaker inverse relationship between SN-ECN, but a stronger positive relationship between ECN-DMN. Main effects of group among controls and drug-use outcomes were found between several networks . Worst drug-use outcomes were associated with disrupted FC (ECN-DMN, ECN-SN), and better drug-use outcomes were associated with stronger inverse FC between DMN networks (ACC-PCC). CONCLUSION: Cocaine patients exhibited reduced whole-brain FC compared to controls. FC of SN-ECN and ECN-DMN differed between patients and controls. An inverse ACC-PCC relationship was associated with better drug-use outcomes. These results add to the growing literature showing that the triple network model may be useful for identifying addiction biomarkers and predicting drug use.

Financial Support: RO1-P50—the Commonwealth of Pennsylvania (CURE), Addiction Center of Excellence: Brain Mechanisms of Relapse and Recovery; NIH/NIDA U54 Cocaine Cooperative Medication Development Center (DA039002); NIH/NIDA T32 Translational Addiction Research Fellowship Program (T32DA028874)

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ID: 618
Role of propylene glycol and vegetable glycerin concentration on the behavioral effects of electronic cigarette aerosol

Arit Harvanko, University of Kentucky

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Behavior

Abstract: Aim: With uncertainties remaining regarding the safety of electronic cigarettes (ECs), and increasing interest in their use as smoking cessation devices, research on these devices is a timely and important topic. Previous research has examined the influence of the type of EC, EC settings, and amount of nicotine in liquids, on the abuse liability of ECs. Yet, little is known about other ingredients in EC liquids. Reports by EC users suggest that two required ingredients in EC liquids — propylene glycol (PG) and vegetable glycerin (VG) — could have a significant impact on the stimulus characteristics and reinforcing effects of ECs. To test this possibility, a recently completed study used a within-subject crossover design to examine the stimulus characteristics of five concentrations of PG and VG, (100:0, 75:25, 50:50, 25:75, and 0:100 PG/VG) each containing a 1.2% nicotine concentration. Methods: Sixteen regular EC users completed a five-session study, which included one practice day and four test days. On each test day, following one hour of nicotine deprivation, participants administered two puffs from each concentration of PG and VG, and taste, sensations, and reinforcing effects (multiple-choice procedure) were measured. Results: Results indicated no significant differences between concentrations on heart rate, mean arterial blood pressure, or preferences for puffs vs. money. Participants reported that 100% VG liquids produced significantly less visible aerosol than 100% PG liquids, and that liquids with more VG produced greater sensation on the tongue and ‘throat hit’ compared to liquids with 100% PG. Conclusion: From a smoking cessation perspective, these results suggest that liquids containing more VG may be more desirable for individuals who value stronger inhalations sensations and visibility of exhaled aerosol.

Financial Support: T32DA035200

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ID: 619
Randomized controlled trial of zolpidem as a pharmacotherapy for cannabis use disorder

Dustin Lee, Johns Hopkins University School of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Treatment

Abstract: AIM: Sleep disturbance is common among individuals with Cannabis Use Disorder (CUD), and cannabis users frequently report sleep disturbance as a contributor to failed quit attempts. The present study was conducted to determine whether adjunct hypnotic medication, combined with evidence-based behavior therapy, would improve abstinence rates among adults seeking treatment for CUD. METHODS: 127 adults were enrolled in a 12-week clinical trial of CUD treatment and randomized to receive extended-release zolpidem or placebo. All received computerized therapy and abstinence-based contingency management verified by twice-weekly urine screens. Ambulatory polysomnography (PSG) assessments were conducted to objectively measure sleep. Timeline Follow-Back was collected at each study visit for self-reported cannabis use. Qualitative outcomes are presented as inferential statistics are pending completion. RESULTS: Treatment retention was equivalent between individuals who received placebo and zolpidem (mean 53 vs 54 days). Compared with placebo, participants receiving zolpidem achieved qualitatively higher rates of cannabis abstinence both during treatment (34% vs. 23% achieving at least one negative urine) and point prevalence abstinence at end of treatment (27% vs 15%). Clinically significant sleep dysfunction was observed in the placebo group during Week 1 of the study, relative to baseline (mean sleep efficiency reduced from 82% to 74%; sleep onset latency increased from 28 to 82 min). No change in sleep efficiency (78.3% vs. 78.5%) or sleep onset latency (43 vs. 47 min) was observed at this time in the zolpidem group, but sleep-related changes indicative of rebound insomnia was observed in this group when zolpidem was discontinued. CONCLUSION: Results from this preliminary analysis suggest that pharmacotherapies targeting sleep disturbance may be useful as an adjunct to behavioral treatments for CUD. Inferential statistical analyses are needed to evaluate the significance of these results and can inform future clinical development.

Financial Support: U01-DA031784, T32-DA07209

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Company Affiliation: Johns Hopkins University School of Medicine

ID: 620
Considering “take drug again” as the primary endpoint in clinical studies of abuse deterrent formulations

Ryan Turncliff, PRA Health Sciences

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Other

Abstract: AIM Clinical Human Abuse Potential (HAP) studies of Abuse Deterrent Formulations (ADF) utilize “Drug Liking” as a primary endpoint. “Take Drug Again” (TDA) may be a more relevant measure of the abuse potential of an ADF. Statistical methodology for estimating sample size requirements to detect differences in “Drug Liking” in HAP studies of ADFs has been described (Chen, 2017). Herein we explored sample size requirements to support proposed percentage reductions in TDA (ie: δ*) as the Primary Endpoint in HAP studies ADFs. METHODS Seven intranasal HAP studies of ADFs were identified in a database (N=36-68). 12- and 24-hr TDA data for the manipulated ADF and Control was summarized; correlation coefficients (rCT) between ADF and Control were calculated for each study. TDA data from 4 studies was utilized to explore prospective sample size requirements to achieve δ*=0.05-0.6 with type I error rate of α=0.025 and power ≥0.90. SAS® for WindowsTM (v9.4) and nQuery Advisor® 7.0 were used for summary statistics and sample size calculations, respectively. RESULTS Mean TDA ranged from 64.85-87.33 across 7 studies (15-42% CV) for Control and 38.43 to 66.32 (38-79% CV) for ADF (rCT= -0.071 - 0.293). Using data from 3 of 4 studies, sample sizes of N=15 and N=17 would be adequate to detect a 30% reduction (δ*=0.3) from Control at 12- and 24-hr TDA time-points, respectively; N>30 would generally be required as Test variability increased. An exponential increase in sample size would be required to detect small reductions (eg: δ*=0.1) when the actual difference is small and the Test variability high. CONCLUSION TDA may be considered as the Primary Endpoint in the assessment of the abuse potential of a manipulated ADF with a sample size of 30-50 subjects. In comparison to “Drug Liking”, the TDA endpoint may better reflect the likelihood of abuse of a manipulated ADF product. Reference: Chen,

Financial Support: This study was funded by PRA Health Sciences

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Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: PRA Health Sciences

Contact Title: Director,

ID: 621
Misperceptions towards opioid agonist therapies among residents and staff in community recovery homes may serve as barriers to uptake of evidence based treatment for opioid use disorder

Curtis Bone, Yale University School of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Behavior

Abstract: AIM The aim of this study was to assess attitudes towards opioid agonist treatments (OAT) among individuals engaged in abstinence only community recovery residences. METHODS We conducted opioid education and naloxone distribution events (OEND) at community recovery homes in Connecticut for individuals with substance use disorders and staff. All participants completed an survey of attitudes towards OAT during the trainings. The survey included 13 questions such as "Methadone and buprenorphine are proven to be the best way of quitting heroin" and "It is better to use no medication than methadone or buprenorphine." Responses ranged on a 5-point Likert scale from "Strongly Disagree to Strongly Agree" and we conducted an ANOVA to assess for attitudinal differences between residents and staff. We conducted four OEND events that involved 11 recovery homes. The first training/survey distribution took place on June 14th 2017 and both data collection and trainings are on-going. RESULTS Among our 74 participants, 43% were female, 28% were younger than 22 and 39% were above 35 years of age. Individuals in recovery constituted 75% of trainees and 25% were staff. Among all participants, 83-87% completed each attitudinal survey question. Overall 17% agreed that opioid agonists are the best way of quitting heroin, 40% agreed that they decrease cravings and 34% agreed they are safe medications; 41% agreed that agonist treatment replaces one addiction for another and 52% agreed that most don't understand difficulty involved in tapering from agonist treatments. There were no significant differences in attitudes between residents and staff. CONCLUSION Community abstinence only recovery residences house a population at high risk for opioid overdose and misperceptions regarding safety and effectiveness of OAT may serve as a barrier to engagement with evidence based practices. Education initiatives tailored for recovery home residents and staff may decrease risk of overdose in this vulnerable population.

Financial Support: The project described was supported by R25DA033211 from the National Institute on Drug Abuse

First Name: Curtis

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Company Affiliation: Yale University School of Medicine

ID: 622
Caffeine dose-dependently increases sign tracking and decreases goal tracking in a Pavlovian conditioned approach paradigm

Matthew Palmatier, East Tennessee State University

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Other (specify)

Topic: Behavior

Abstract: AIM Caffeine is only self-administered by rats when presented with saccharin. We hypothesized that this effect followed from an increase in the incentive salience of saccharin-paired cues. The aim of the present study was to determine if caffeine enhances sign-tracking, a putative index of incentive salience, to conditioned stimuli (CSs) paired with reward. METHODS Rats were randomly assigned to one of three caffeine doses (0, 10, or 25 ug/kg) before testing. During testing, 15 presentations of a CS (15 s extension of a lever and illumination of a light above the lever) immediately followed by delivery of 0.1 ml sucrose (20% w/v) in a receptacle adjacent to the lever. Sign tracking was defined as contacts made with the lever, goal tracking was defined as entries made into the receptacle during the CS. The Pavlovian Conditioned Approach (PCA) index was used to dissociate approach to the sign vs. the goal. Assigned caffeine doses were injected IP 15 min prior to the session. After 7 conditioning sessions, rats were instrumented for dopamine microdialysis sampling targeting the nucleus accumbens and the effects of caffeine injections or the CS presented after caffeine injection on dopamine efflux were measured. Dialysis samples have not yet been analyzed for dopamine content. RESULTS The PCA-index indicated that caffeine shifted rats from a goal tracking topography to a sign-tracking topography (main effect of Dose, p 0.05). Further analysis suggested that caffeine dose-dependently reduce goal tracking (ps < 0 .05), only but only the 10 mg/kg dose enhanced sign-tracking (p < 0 .01). CONCLUSION These findings indicate that caffeine promotes the incentive motivational effect of reward-associated stimuli which may account for its ability to support self-administration in humans and non-humans.

Financial Support: No

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Last Name: Palmatier

Company Affiliation: East Tennessee State University

ID: 623
Prenatal cigarette and cannabis exposure effects on parenting: Role of postnatal adversity

Meghan Casey, Research Institute on Addictions

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Perinatal

Abstract: Aims: Harsh parenting marked by high maternal negative affect (MNA) is a consistent and significant risk factor for a large range of developmental outcomes associated with prenatal substance exposure. However, few studies have examined the association between prenatal substance exposure and MNA, especially in the context of other adversity (i.e., maternal psychopathology, partner/social support, caregiving environment). We hypothesized that maternal pregnancy cigarette and cannabis use would be associated with higher MNA during mother-toddler play interactions, and these associations would be mediated by postnatal adversity. Methods: The sample consisted of 193 mother-infant dyads (137 prenatally exposed to cigarettes, 56 non-exposed, with 55 % of cigarette smokers also using cannabis), recruited prenatally. Mothers and children were assessed at 2, 9, and 16 months of child age. Maternal substance use was measured using maternal self-report, saliva, and infant meconium. MNA was coded from videotaped observations of play interactions at 16 months. Postnatal adversity was a composite of measures assessing maternal psychopathology, partner/social support, and the caregiving environment in infancy. We used linear regression to examine the associations of maternal prenatal substance use and postnatal adversity with MNA. Results: Results indicated that prenatal cigarette exposure had an indirect effect on MNA via postnatal adversity, b*= .145, SE =.472 , p =.049 . Prenatal cannabis exposure had a direct effect on MNA, b* =.142, SE =.071 , p =.049, and this direct effect was partially mediated by postnatal adversity, b* =.129 , SE =.070 , p =.070. Conclusions: The postnatal environment of prenatal substance users is often characterized by higher levels of maternal stress, depression, anger, and hostility. These results suggest that when examining the relationship between prenatal substance exposure and parenting, it is important to consider postnatal adversity as it may be a mechanism through which prenatal substance use is associated with parenting.

Financial Support: Supported By: R01DA019632 (RDE).

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Degrees: MA MD Ph.D etc:: Ed.M.

Company Affiliation: Research Institute on Addictions

ID: 624
A care management approach to facilitate entry and retention in medically assisted treatment among women with opioid use disorder

Dennis Hand, Thomas Jefferson University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: AIM The opioid use disorder (OUD) epidemic, which has disproportionately affected reproductive-aged women, has increased the number of people needing access to medically assisted treatment (MAT). Individuals with OUD face barriers to treatment, including ambivalence about treatment, transportation, and complex healthcare and public welfare systems. We designed a high-intensity care management intervention to help women with OUD referred to MAT navigate these barriers. METHODS We conducted a retrospective cohort study comparing data from individuals admitted to MAT who received care management (N = 81) to those admitted in the 6 months prior to the intervention (N = 39). The intervention involved face-to-face meetings with social workers, motivational interviewing, and identification of and assistance navigating engagement barriers. After admission, care managers navigated clients through the first steps of receiving MAT using in-person, telephonic, and text outreach. Retention in treatment and lapses to opioid and benzodiazepine use were compared between groups with chi-square and Mann-Whitney U tests. RESULTS Clients who received care management were significantly less likely than clients who did not receive care management to be discharged from the treatment program (25% vs. 49%, $\chi 2 = 6.93$, $p = .008$) and to have a lapse to benzodiazepine (27% vs. 51%, $\chi 2 = 6.73$, $p = .009$), but not opioid use (41% vs. 56%, $\chi 2 = 2.60$, $p = .107$). Among clients who lapsed, those receiving care management lapsed significantly earlier in treatment to opioid ($Z = -3.56$, $p < .001$) and benzodiazepine use ($Z = -3.21$, $p = .001$). CONCLUSION Care management significantly improved treatment retention and frequency of lapses to opioid or benzodiazepine use. Improved retention among individuals ambivalent about treatment may underlie the shorter latency to lapse in the care management group. Furthermore, greater retention offers more opportunities for lapses to be discovered by random urine drug screening.

Financial Support: Pennsylvania Department of Health and Human Services Center of Excellence Award Contract #17-20377.

First Name: Dennis

Last Name: Hand

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Thomas Jefferson University

ID: 625
What drives us to drink? Examination of a novel progressive-ratio intravenous (IV) alcohol self-administration paradigm in humans

Bethany Stangl, National Institute on Alcohol Abuse and Alcoholism

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Alcohol

Topic: Behavior

Abstract: AIM The aim of this study was to characterize the determinants of IV alcohol self-administration using the Computer-Assisted Self-infusion of Ethanol (CASE) with a progressive-ratio (PR) paradigm in non-dependent drinkers. The willingness to work for a reward is the hallmark of addictive drugs and a measure of motivation. METHODS Participants (n=85) completed a PR-CASE session consisting of a 25-min priming phase, where subjects were prompted to push a button to receive individually standardized ethanol infusions, followed by a 125-min phase where they could push the button an increasing number of times for each additional infusion using a progressive-ratio schedule. Participants were classified as low or high responders based on a median split of the number of infusions that the participant worked for during the session. Serially collected subjective measures included the Drug Effects Questionnaire, Alcohol Urge Questionnaire and Biphasic Alcohol Effects Scale. Alcohol expectancy was measured using the Alcohol Effects Questionnaire. RESULTS High responders had less expectations for the negative effects of alcohol (p=0.004) and expected greater global positivity from the alcohol (p=0.05). High responders were willing to pay more for a theoretical drink of alcohol both post-prime and at the end of the session (p=0.03; 0.001). Higher responders were also less sensitive to the effects of the alcohol following the priming dose for “feel”, “high” and “intoxicated” (p=0.02; 0.04; 0.001). High responders also had greater peak measures for “like” and “want more” alcohol as well as greater peak “urge” for alcohol (p=0.02; 0.01; 0.02). This group also reported less sedation from the alcohol both post-prime and peak (p=0.001; 0.04). CONCLUSION Overall, those who were more motivated to work for alcohol showed lower priming effects and had greater overall craving for alcohol. Self-administration measures reflected the rewarding hedonic effects of alcohol, suggesting that this paradigm assesses the incentive salience and motivation for alcohol consumption.

Financial Support: Supported by the NIAAA Division of Intramural Clinical and Biological Research (Z1A AA000466).

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Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: National Institute on Alcohol Abuse and Alcoholism

ID: 626
Trends in cannabis and nicotine co-use among adolescent cannabis users

Ashley Knapp, Geisel School of Medicine at Dartmouth

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Adolescent

Abstract: Aim: The primary study aims were to leverage social media to survey a large sample of cannabis-using adolescents to examine nicotine use trends, and the initiation sequence of and relationship between use of cannabis and nicotine. Different administration methods for both nicotine and cannabis were evaluated. Methods: A sample of adolescent cannabis-users (N=2630), that was 51% female, 79% Caucasian, and between 14-18 years, completed a brief online survey about their nicotine and cannabis use distributed through Facebook advertisements. Distributions and descriptive information for these variables were examined. Results: Most adolescents in the sample reported lifetime cannabis use of more than 365 days (41%) or between 101-365 days (22%). The majority of adolescents reported ever smoking cannabis (99%) and using cannabis edibles (61%), and 44% endorsed ever vaping cannabis. These youth reported high rates of nicotine use, both in the form of combustible cigarettes (73% lifetime, 58% past-month) and electronic nicotine delivery systems (ENDS) (71% lifetime, 50% past-month). Further, the mean age of first cannabis use was earlier among those that had ever smoked tobacco (p
Financial Support: T32DA037202, P30DA029926, R01DA032243, R01DA015186

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Last Name: Knapp

Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: Geisel School of Medicine at Dartmouth

ID: 627
The landscape of bundled payment: Where does addiction fit in?

Constance Horgan, Brandeis University, Heller School for Social Policy and Management

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Abstract Category: Theoretical/Commentary

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Policy

Abstract: Background: There are a growing number of bundled payment arrangements being tested nationally, including the Medicare Bundled Payment for Care Improvement (BPCI) demonstration, the mandatory Medicare bundles for joint replacement, as well as pilot programs involving private payers and state Medicaid programs (e.g. New Mexico, Arkansas). Bundled payment models are much less commonly used in substance use treatment, despite the high prevalence rates of these conditions in some populations and their contribution to medical care costs and readmissions. Aim: This paper will review the conceptual challenges with creating substance use treatment bundles, including systems capacity, consumer engagement and the remitting/relapsing nature of many behavioral health conditions and draw lessons for the substance use field from the experience in general medicine. In addition, we will share findings from a nationally representative survey of commercial health plans and from studies that have tested the feasibility and outcomes of behavioral health bundles. Results: Findings indicate commercial health plans are using and testing global and bundled payment and are exploring how best to include behavioral health in these payment systems. Simulations of bundled payment for mental health and substance use conditions indicate that it is possible to build bundles, although risk mitigation is a challenge. For example, the mean cost for a 90-day detox episode is $3,743 with costs driven by the index detoxification, psychiatric inpatient care and short-term residential care. Conclusion: This and other empirical work suggest that there are many opportunities for future bundle payment design and research to improve the quality and value of substance use treatment.

Financial Support: Funding: Brandeis Harvard NIDA Center (P30 DA035772)

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Degrees: MA MD Ph.D etc:: Sc.D.

Company Affiliation: Brandeis University, Heller School for Social Policy and Management

Contact Title: Director

ID: 628
Effect of non-invasive transcranial alternating currents stimulation (tACS) on inhibitory control among substance users in intensive outpatient substance use treatment

Stacey Daughters, University of North Carolina at Chapel Hill

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Mechanisms of Action

Abstract: Aims: Cognitive control deficits contribute to the inability to maintain abstinence following substance use treatment. Non-invasive brain stimulation has shown promise in modulating cognitive control neuronal networks. Transcranial alternating current stimulation (tACS) may offer additional advantages over existing approaches (e.g., tDCS, TMS), as it allows for more targeted stimulation of specific brain network oscillations. The aims of the current study were twofold; (1) to examine the acceptability and feasibility of administering tACS at an intensive outpatient substance use treatment setting, and (2) to test the effect of tACS on inhibitory control. Methods: This was a randomized, sham-controlled, double-blinded design. Treatment-seeking substance users (n = 18; M age=47.5 years, 77.8% male, 29.4% African American) attended two sessions during which they completed an inhibitory control (Go/No-Go) task while receiving tACS administered over the dorsolateral prefrontal cortex of both hemispheres. Participants received the tACS sham condition during session 1 and were randomized to sham, 10Hz, or 40Hz during session 2. Results: Session 2 retention was 95%, with one participant ineligible due to a positive urine screen. Repeated measures ANOVA indicated a significant time by condition (sham, 10Hz) interaction on the Go/No-Go d-prime ($F(1,10)=10.0$, $p = .004$). Post hoc tests revealed that the 10Hz condition significantly increased (diff=.25 (SE = .04), 95% CI=[.15, .36]), and the sham condition decreased (diff=-.28 (SE = .16), 95% CI=[-.73, .17]), d-prime over time. There was no time by condition effect on d-prime when comparing 40Hz to sham or 10Hz. Conclusions: Results demonstrate the feasibility of recruiting and retaining participants enrolled in an intensive outpatient substance use treatment center for on-site tACS repeated administration of tACS, with evidence indicating a positive effect of 10Hz tACS on inhibitory control.

Financial Support: None

First Name: Stacey

Last Name: Daughters

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: University of North Carolina at Chapel Hill

Contact Title: Assistant Professor

ID: 629
Distinct patterns of resting state functional connectivity among inpatients reporting crack use versus snorted cocaine use

Priscila Dib Gonçalves, University of São Paulo

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Stimulants

Topic: Imaging

Abstract: Aim: To examine differences in functional connectivity between smoked versus snorted cocaine inpatients after recent monitored abstinence through whole-brain and network-specific analyses. It is hypothesized that different cocaine administration routes would show discrepancies in Resting State Functional Connectivity (RSFC). Methods: Twenty-nine inpatients were divided into 2 groups according to the route of administration of cocaine in the last 30 days: Crack group (Cr), 14 individuals with smoked cocaine use; Cocaine group (Coc), 15 patients with snorted cocaine use. Participants completed executive function testing and resting state functional Magnetic Resonance Imaging (fMRI). Demography, clinical and neuropsychological variables between the groups were compared using Mann Whitney and Fisher's exact tests (SPSS). Partial Least Squares Correlation (MATLAB) whole-brain analyses were used to explore RSFC. Results: Participants were mainly Caucasian men with an average age of 32 with average IQ. Cr group had less years of education, presented worst global functioning, more years of cocaine use and better working memory scores. When directly comparing the groups, different patterns of RSFC in the whole-brain analyses between groups were observed. The 3 main discrepancies in RSFC pairs were: default mode network (DMN) and somatomotor (representing 20% of the significant RSFC), DMN and dorsal attention network (13%), DMN and ventral attention network (13%). After comparing the groups by specific brain regions, higher percentage of RSFC were noted between: left parietal lobe and left frontal lobe (representing 8% of the significant RSFC), right and left frontal lobe (6%), right parietal lobe and left frontal lobe (6%). Conclusion: These findings indicate differences in RSFC specific pairs of network (DMN-somatomotor, DMN-dorsal attention, DMN-ventral attention), and among frontal and parietal regions when comparing inpatients with recent smoked and snorted cocaine use.

Financial Support: Brazilian National Counsel of Technological and Scientific (CNPq) (402721/2010-1) São Paulo Research Foundation – FAPESP (2010/01272-6).

First Name: Priscila

Last Name: Dib Gonçalves

Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: University of São Paulo

ID: 631
CXCR4 & CCR5 chemokine receptor antagonists significantly enhanced morphine-induced antinociception in female, but not male, mice in the formalin test

Xiaohong Chen, Center for Substance Abuse Research, Lewis Katz School of Medicine of Temple University

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Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Opiates/Opioids

Topic: Drug Interactions

Abstract: AIM Our laboratory has reported that the antinociceptive activity of morphine can be reduced by the presence of the HIV surface protein, gp120, in the periaqueductal gray region of the brain, and that pretreatment with AMD3100, a specific CXCR4 HIV co-receptor antagonist, is able to restore the analgesic effects of morphine in the cold-water tail-flick test in rats. Maraviroc is a potent and selective small-molecule inhibitor of the HIV chemokine co-receptor, CCR5. The present experiments used these selective chemokine receptor antagonists, AMD3100 and maraviroc, to investigate their effect on the antinociception induced by morphine in male and female mice in the formalin test. METHODS At t=0, 20 μl of 5 % formalin prepared in 0.9 % saline was administered (s.c) into the plantar hind paw. Immediately thereafter, each animal was given saline or morphine into the dorsal surface of the body (s.c.). AMD3100, maraviroc or vehicle was injected dorsally (s.c.) on the opposite side. Animals were then placed into a transparent vessel for observation of the formalin-induced licking response at t=20-35 minutes. RESULTS The results showed that (1) analgesia produced by morphine (1.0 mg/kg) was enhanced by AMD3100 (5.0 mg/kg), in female, but not male, mice. (2) Similarly, maraviroc (5.0 mg/kg) significantly enhanced morphine (1.0 mg/kg)-induced analgesia, compared to morphine alone in female mice, but not in male mice. CONCLUSION In conclusion, either AMD3100 or maraviroc, when in combination with suboptimal analgesic doses of morphine at certain ratios, showed significantly enhanced antinociception in female, but not male, animals in the formalin test, indicating that this combination could be used to produce analgesia equivalent to that which could be obtained with a higher dose of morphine alone.

Financial Support: Grant W81XWH-15-1-0252 from the Department of Defense

First Name: Xiaohong

Last Name: Chen

Degrees: MA MD Ph.D etc:: MD

Company Affiliation: Center for Substance Abuse Research, Lewis Katz School of Medicine of Temple University

ID: 632
Demographic and clinical predictors of treatment retention in a randomized, placebo-controlled trial of quetiapine for Cannabis Use Disorder: A preliminary analysis

Mariely Hernandez, The City University of New York

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Treatment

Abstract: AIM Published studies suggest Cannabis use disorder (CUD) is associated with negative outcomes such as psychological problems, limited educational and vocational achievement, and cognitive impairment. Given the seriousness of the adverse consequences of a CUD and data supporting that prolonged treatment retention is associated with positive outcome, we investigated demographic and clinical variables as predictors of treatment retention in adults with CUD. METHODS 125 treatment-seeking adults with CUD were randomized to quetiapine or placebo for 12-weeks. Baseline DSM-IV CD symptoms were collected from semi-structured diagnostic interviews (SCID-I, MINI-Plus) completed during screening. Univariate logistic regression analyses of baseline characteristics (age, sex, race, ethnicity, marital status, employment and education) and DSM-IV CD symptoms were performed and predictors of retention with pRESULTS Fifty-six percent (n=70) of participants completed 12 weeks of treatment. The odds of retention were significantly higher for those who did not endorse the DSM-IV CD symptom of giving up social activities due to drug use (AOR = 3.96, 95% CI = 1.44, 10.9), after controlling for marital status and 3 DSM-IV CD symptoms (increased time spent obtaining and using drugs; physical or psychological problems due to drug use; and experiencing withdrawal symptoms). CONCLUSION These preliminary findings identify continued social participation despite drug use as a predictor of retention in treatment seeking adults with CD. Future studies should investigate the nature and frequency of social engagement as a potential predictor of successful treatment completion.

Financial Support: NIDA grant 1R01DA031826 NIDA grant K24 DA029647

First Name: Mariely

Last Name: Hernandez

Degrees: MA MD Ph.D etc:: MA

Company Affiliation: The City University of New York

ID: 633
Combination with pregnanolone increases the sedative effects of triazolam and zolpidem in rhesus macaques

Daniela Rüedi-Bettschen, University of Mississippi Medical Center

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Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Sedative-Hypnotics

Topic: Behavior

Abstract: AIM Triazolam and zolpidem, which exert their action through positive modulation of the GABAA receptor, are used predominantly for the treatment of insomnia, but have limitations due to their side effects, such as abuse liability. Pregnanolone is an endogenous neuroactive steroid that also acts as a positive allosteric modulator of the GABAA receptor, and has been shown to have sedative, anxiolytic and anesthetic effects. Combination with pregnanolone has been shown to potentiate the anxiolytic-like effects of triazolam, and engender less than additive effects in self-administration. However, the potential interaction of pregnanolone with benzodiazepine-type sleep aids on sedative-motor effects characteristic of these drugs is unknown. METHODS Quantitative behavioral observation techniques were used to assess behavioral effects in four female rhesus macaques (Macaca mulatta) after iv administration of zolpidem, triazolam, and pregnanolone, alone or combined. Behaviors assessed included drug-induced sedative-motor effects, such as rest/sleep posture (eyes closed, easily roused by external stimulation), ataxia (slip, trip, fall) and deep sedation (eyes closed, not easily roused), as well as species-typical self-directed (grooming, scratching) and environment-directed behaviors (tactile/oral exploration, locomotion, foraging). RESULTS Each drug alone dose-dependently induced sedative-motor effects in all subjects, with deep sedation occurring for all drugs after the highest doses. Using dose-addition and isobolographic analyses, combinations of triazolam or zolpidem with pregnanolone resulted in supra-additive and additive interactions for these measures. As sedative-motor effects increased with dose in all drugs, environment- and self-directed behaviors decreased concomitantly. CONCLUSION Combination of a neuroactive steroid with either triazolam or zolpidem resulted in supra-additive and additive sedative-motor effects, suggesting a unique interaction between these different classes of GABAA modulators. While this observation may limit the usefulness of neuroactive steroid-benzodiazepine combinations for the treatment of anxiety disorders, it may be a promising lead for the development of novel insomnia treatments with reduced abuse liability.

Financial Support: NIH DA011792, DA033795, AA016179

First Name: Daniela

Last Name: Rüedi-Bettschen

Company Affiliation: University of Mississippi Medical Center

ID: 634
North Campus: Integrating primary and behavioral healthcare for individuals with substance use disorders

Dawn Farrell-Moore, Richmond Behavioral Health Authority

Abstract Category: Program Descriptions

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: Aims: The significantly poor health outcomes of people with co-occurring mental health and substance use disorders (SUD) are well documented. Integrating behavioral and primary health care in the same setting where individuals receive ongoing services, and where they are comfortable, is a much-desired solution that can present a myriad of challenges upon implementation, especially for a non-Medicaid expansion state such as Virginia. The Richmond Behavioral Health Authority (RBHA), a behavioral health services provider in Richmond, has significantly expanded its integrated health care services by acquiring a residential SUD treatment program incorporating primary health care as well, to include medications for opioid treatment. The goals of the program are to: 1) Improve health outcomes for those with mental health, SUD and primary health issues; 2) Address the opioid epidemic by providing evidence-based care; 3) Adapt to the changing healthcare landscape and the push towards integrated care; and 4) Develop a sustainable model for the delivery of integrated care into the future. Methods: Analysis and reporting of selected details of patient data collected over the past year of the project to include profile of the population served and health outcomes. Results: This program description will include: 1) Challenges met and innovations initiated; 2) Details about populations served, including demographics, and high-level outcome data; and 3) Challenges with regard to staffing, culture change, and billing. Conclusions: The integrated care initiative has led to a culture change in RBHA's approach to the delivery of primary care and SUD services that is more holistic, person-centered, and ideally meet the challenges of the future while improving outcomes for the people we serve.

Financial Support: This project is not currently supported by any federal grant funds.

First Name: Dawn

Last Name: Farrell-Moore

Degrees: MA MD Ph.D etc:: MSW

Company Affiliation: Richmond Behavioral Health Authority

ID: 635
Observable behavior predicts anxiolytic-like effects but not self-administration of benzodiazepine-type drugs in rhesus monkeys

Lais Berro, University of Mississippi Medical Center

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Sedative-Hypnotics

Topic: Mechanisms of Action

Abstract: AIM Benzodiazepines are prescribed widely for conditions such as anxiety and sleep disorders. However, their therapeutic use is controversial because of unwanted side effects such as abuse liability. In the present study, we investigated the relationships among anxiolytic-like, sedative-motor, and reinforcing effects of a series of compounds, including conventional benzodiazepines and selective GABAA receptor (GABAAR) ligands in rhesus monkeys. METHODS Male and female adult rhesus macaques were trained to self-administer (N=4) GABAAR ligands under a progressive-ratio schedule of reinforcement. Anxiolytic properties were evaluated using a conflict procedure (N=4). Quantitative behavioral observation techniques (N=4) were used to assess sedative-motor effects. Relative potencies (RPs: ED50 of test compound divided by the ED50 of a standard drug, diazepam) were calculated for the nonselective GABAAR ligands diazepam, alprazolam and MRK-696, functionally-selective agonists TPA023B (α2/3/5GABAAR) and HZ-166 (α2/3/5GABAAR), and the putative α3GABAAR-selective ligand TP003 for each behavior described above. RESULTS All GABAAR ligands dose-dependently engendered anti-conflict (anxiolytic-like) effects, increased rest/sleep posture (eyes closed, easily roused by external stimulation), decreased tactile/oral exploration (any manipulation of the cage/environment) and maintained self-administration. Regression analysis showed significant linear relationships and positive correlations between RPs for anti-conflict effects and increases in rest/sleep posture (R2 =0.68) and anti-conflict effects and decreases in tactile/oral exploration (R2 =0.71), but not self-administration and observable behaviors (R2 values < 0 .5). CONCLUSION The anti-conflict effects of GABAAR ligands are good predictors of anxiolysis in human patients. Thus, the relationship between anti-conflict effects and observable behavior suggests that the RPs for rest/sleep posture and tactile/oral exploration might be reliable predictors for anxiolytic-like effects. Moreover, these findings suggest that similar receptor sub-populations (potentially α2/3GABAAR) may mediate benzodiazepine-induced anxiolysis and sedative-motor effects. Because observable behavior did not predict self-administration, the reinforcing effects of GABAAR ligands seem to be mediated by a distinct receptor population.

Financial Support: AA016179 (DMP), MH096463 (JMC), NS 076517 (JMC), DA011792 (JKR).

First Name: Lais

Last Name: Berro

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: University of Mississippi Medical Center

ID: 636
Perceptions of helpfulness of a mindfulness meditation program in women with PTSD and SUD

Therese Killeen, Medical University of South Carolina

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Treatment

Abstract: Aim: Mindfulness Based Relapse Prevention (MBRP) implemented as an aftercare program has shown efficacy in reducing alcohol and substance use (Bowen et a., 2014). Bowen et al., 2017 found that mindfulness mediates the relationship between PTSD symptoms and substance use disorders, particularly through such components as describing, acting with awareness and nonjudgmental acceptance. The current study is piloting an adapted version of MBRP to address comorbid PTSD and SUD in treatment seeking women enrolled in community SUD treatment. This early stage behavioral development study explores acceptability, safety, usefulness, feasibility and preliminary effectiveness. Method: Women with SUD and PTSD enrolled in community SUD treatment received eight group sessions of MBRP in addition to standard intensive treatment. At week eight, women were queried regarding the helpfulness of the program and how they would integrate mindfulness meditation into their daily lives. Participants completed a "reflections on the course" worksheet following the last session. Results: Eleven women completed the worksheets at the end of the course. Nine of the eleven women rated the program as a 10 on a scale of 1 (not at all) to 10 (very) for being important in their recovery program. All of the women rated the likelihood of continuing to engage in formal and informal mindfulness meditation practices as a 10 on the same scale. Women valued being able to open up and explore their thoughts and emotions in an accepting group environment, being nicer and easier on themselves, learning to to focus on themselves and their breath, recognizing that thoughts were not facts and being present rather than living in the past. Several women expressed benefits not only for themselves but for their children. Conclusion: In their own words women expressed high acceptability and helpfulness for an eight session MBPP program integrated into their standard SUD treatment.

Financial Support: NIDA R01 AT008674

First Name: Therese

Last Name: Killeen

Degrees: MA MD Ph.D etc:: Ph.D/APRN

Company Affiliation: Medical University of South Carolina

ID: 637
Cocaine exposure and caregiving quality: Sex differences and effects on child behavior problems

Ariana Roman, Research Institute on Addictions

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Stimulants

Topic: Sex Differences

Abstract: AIM: Cocaine exposed children (PCE) are more likely to be in foster care and display externalizing behavior problems (EBP). However, results are not consistent perhaps due to biological and social variables that may moderate these associations. We examined the role of child sex and quality of caregiving as moderators of the association between PCE and EBP among children who are in biological or foster/kin care. We hypothesized stronger effects of cocaine exposure and care status on EBP for boys, and in the context of low quality caregiving. METHODS: Participants were 207 caregiver-child dyads (116 PCE, 91 controls). PCE was measured by maternal self-report, urine toxicology, and maternal hair. Among the 116 PCE children, 55 were or had resided in foster or kin care and 61 remained with their biological parent. Caregiver sensitivity and negative affect were measured during free-play interactions and a final score was computed by taking the mean from 7, 13, 24, and 48-month assessments. Caregiver reported EBP were measured by the Child Behavior Checklist (CBCL) and Behavior Assessment Scale for Children (BASC-II). RESULTS: ANOVA with the 3-level cocaine/care status (PCE in foster care, PCE in biological parent care, and control) as the predictor indicated no main effects of PCE/care status or child sex on EBP, but there was a significant interaction between sex and PCE/care such that PCE boys in foster care had significantly higher EBP than PCE girls in foster care (Cohen's d = .93), or boys in any other PCE/care situation (d = .4-.43). There was also a marginal main effect of high caregiver negative affect on higher levels of EBP $F(2, 147) = 3.21$, $p=.07$. CONCLUSION: Foster care appears to be a risk factor among PCE boys, highlighting the importance of considering the caregiving context for PCE children.

Financial Support: R01DA041231 (RDE)

First Name: Ariana

Last Name: Roman

Company Affiliation: Research Institute on Addictions

ID: 638
Substance use and other risks associated with offence types among justice involved youth

Hayley Hamilton, Centre for Addiction and Mental Health

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Adolescent

Abstract: AIMS: The objective of this study is to explore substance use, family circumstances and other risks among youth involved in the justice system, and examine differences by offence types. METHODS: Analyses were based on secondary data on 233 adolescents ages 16 to 19 in youth justice facilities in Ontario, Canada. This secondary database consisted of data extracted through reviews of multiple youth justice administrative databases as well as reviews of individual youth files within facilities. The sample was 85% male with a mean age of 16.9 (sd=.78). RESULTS: Occasional drug use was identified among 87% of youth. Chronic drug and alcohol use were identified within 55% and 20% of the sample, respectively. Substance use was linked to offences committed among 56% of youth. One in four (24.7%) youth had a current or prior history of drug charges. Youth with drug charges were more likely to engage with peers outside their age range, be victims of physical or sexual abuse, exhibit antisocial attitudes, and have higher numbers of prior or current offences relative to other youth. CONCLUSION: Findings indicate that youth who have committed drug offences have longer histories with the justice system and are more likely to have experienced various other risk factors than other youth. A high risk of substance use is also evident among youth involved in the justice system.

Financial Support: Larger research project was funded by the Canadian Institutes of Health Research (201211PHE).

First Name: Hayley

Last Name: Hamilton

Company Affiliation: Centre for Addiction and Mental Health

ID: 639
Rewarding value in substance use treatment: What are the unique challenges?

Constance Horgan, Brandeis University, Heller School for Social Policy and Management

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Abstract Category: Theoretical/Commentary

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Policy

Abstract: Background: Value-based purchasing (VBP) approaches are being used and tested to improve quality of care and control costs. Incentives can be financial (e.g. bonuses or penalties) or non-financial (e.g. reputational). Although pay-for-performance programs (a variant of VBP) are used in a variety of settings, effectiveness studies have shown mixed results with modest improvement on some measures and not others. As VBP programs proliferate, despite the limited evidence, it is important to take a more detailed approach to understanding these initiatives. Furthermore, the context within which VBP programs are implemented is likely to affect results. The US substance use disorder (SUD) treatment system has some unique features that may be important for the feasibility or design of value-based payment, including a large public sector role, a separate treatment system, and low rates of treatment relative to need. Aim: The aim of this paper is to highlight some of these contextual and environmental differences and explore how to design VBP programs that take into account the unique features of SUD treatment. The paper examines how to select appropriate measures, design incentives, and determine the optimal target for incentives given the unique aspects of substance use treatment. The paper concludes with a discussion of the role of clients in value-based purchasing. Building on the existing literature base and work conducted by the authors in Maine, Delaware and Connecticut, the paper shares experiences and lessons learned to guide and improve future efforts at value-based purchasing in substance use treatment. Conclusion: While VBP has considerable promise, there are also significant challenges and it is important for policymakers and payers to learn from previous experiences of VBP in SUD treatment and to account for the unique features of SUD treatment.

Financial Support: Brandeis Harvard NIDA Center (P30 DA035772)

First Name: Constance

Last Name: Horgan

Degrees: MA MD Ph.D etc:: Sc.D.

Company Affiliation: Brandeis University, Heller School for Social Policy and Management

Contact Title: Director

ID: 640
New theranostic clathrin-nanoparticles efficiently deliver D3R-antibodies noninvasively to targeted dopamine brain regions

Gordana Vitaliano, McLean Hospital, Harvard Medical School

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Stimulants

Topic: Other

Abstract: AIM: Antibodies have high specificity and affinity for molecular targets and show great promise for diagnostic imaging and treatment of drug addiction. However, antibodies cannot cross an intact blood-brain-barrier (BBB), which is important for removal of drugs from brain and early treatment of drug addiction. Only 0.1% of plasma antibodies enter the brain and take days to diffuse only a few millimeters. Our goal was to develop a new nanotechnology for efficient noninvasive delivery of therapeutic antibodies to target mesolimbic dopamine brain regions implicated in drug addiction. METHODS: Anti-dopamine-3R-antibody (D3R-Ab) was selected for its potential to treat addiction to stimulants (e.g., cocaine). D3R-Ab was conjugated to clathrin-nanoplatform via polyethylene glycols. Nanoparticle size was determined and immunoreactivity tested by Western Blot. D3RAb-nanoparticles (64 μg/kg) were delivered intranasally in rats. Control animals received only D3R-Abs. Rats were sacrificed three hours after intranasal administration and immunohistochemistry, immunofluorescence and ELISA analyses were performed. RESULTS: D3RAb-clathrin-nanoprobes (42.3 nm) had high specificity for D3-receptors in rat brain. Three hours after intranasal administration, intact D3RAb-nanoparticles were found only in D3R-brain regions. Fluorescent and light microscopic examination confirmed specific targeting of D3-receptors with D3RAb-nanoprobes. High nanoprobe concentrations (2,753 ng/g) were detected in basal forebrain (islands of Calleja and ventral pallidum) and nucleus accumbens (1,028 ng/g). D3RAb concentrations were undetectable in prefrontal cortex and were low in the cerebellum (84 ng/g). Also, D3R-Abs were not detected in animals that received only D3R-Abs without clathrin. CONCLUSION: D3RAb-clathrin-nanoprobes successfully bypassed intact BBB, targeted D3-receptors, and delivered adequate concentrations of D3R-Abs (17.2% ID/g) to targeted brain regions. This nanotechnology may lead to development of nontoxic, stable, theranostics to assist in early detection of neurobiological changes in drug addiction, to monitor progression of the disease and recovery process, and to treat drug addiction early with mono or bispecific antibodies (e.g., anti-cocaine/anti-D3R-Abs).

Financial Support: NIH NIDA K08DA037465, NIH NIDA R43DA044050, Brain & Behavior Research Foundation.

First Name: Gordana

Last Name: Vitaliano

Degrees: MA MD Ph.D etc:: MD, Ph.D

Company Affiliation: McLean Hospital, Harvard Medical School

ID: 641
Does a major depression precursor state influence adolescent-onset heroin use? Epidemiologic case-control evidence

Alyssa Vanderziel , Michigan State University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: AIM Studying nationally representative samples of youths in the United States (US), we estimate the degree to which newly incident heroin use in early-mid adolescence might be influenced by a Major Depression precursor state – namely, a 'stretch' of mood disturbance that lasts 1-3 days with prominent feelings of depression or depression-equivalents (e.g., anhedonia). METHODS Study population samples of US National Surveys on Drug Use and Health (NSDUH), 2008-2016, included >149,000 non-institutionalized civilians 12-17 years of age. After multi-stage sampling and recruitment, computerized self-interviews identified 156 newly incident heroin users (NIHU) and 13,576-19,232 never-user controls per year, and included a three-item assessment of the precursor history. The NIHU case definition required onset of first heroin use 0-24 months prior to the assessment month. Year-specific odds ratio (OR) estimates are from analysis-weighted logistic regression models with Taylor series linearization. Meta-analysis provided summaries of the nine year-specific OR estimates. RESULTS From meta-analysis, the crude OR estimate is 1.9 (95% confidence interval, CI = 1.2, 3.0), signifying that the newly incident heroin users were more likely to have a history of the 'depression stretch' precursor state. With covariate adjustment (e.g., age, sex, age*sex), there was no appreciable attenuation of the year-specific estimates (meta-analysis summary adjusted OR = 1.8; 95% CI = 1.1, 2.8). CONCLUSION Epidemiologic case-control approaches rarely have been used in research on heroin incidence. The estimates are subject to limitations of note, including a possibility that this precursor state might follow and be caused by newly incident heroin use. NSDUH now assesses month of first heroin use assessments. An addition of items on month of 1st 'depression stretch' would strengthen the evidence base.

Financial Support: T32DA021129, K05DA015799[JCA], NIDA VPT32[AV] and Michigan State University.

First Name: Alyssa

Last Name: Vanderziel

Degrees: MA MD Ph.D etc:: MS

Company Affiliation: Michigan State University

ID: 642
Developing and testing a novel prospective memory training program in opioid and polysubstance users across 15 and 30 sessions of training

Meredith Berry, Johns Hopkins University School of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Behavior

Abstract: AIM: Individuals with substance use disorders exhibit deficits in prospective memory and working memory. Prospective memory is the ability to implement future intentions, and working memory is a critical underlying component of prospective memory. Deficits in prospective and working memory likely play an integral role in substance use treatment failures, as substance use treatment requires implementation of future intentions (e.g., attending group therapy sessions, taking medications, avoiding situations known to trigger drug use). Improvements in prospective memory and working memory, therefore, constitute a viable target for intervention. Our aim was to develop a novel prospective memory training program which incorporates working memory. METHOD: Participants (n=10, recruitment is ongoing) enrolled in an outpatient substance use disorder treatment program participated in 30 sessions (each lasting approximately one hour) of the novel prospective memory training program. RESULTS: Results show that prospective memory and working memory performance within the training program improved across the 30 training sessions. However, improvements in prospective and working memory performance were observed predominantly from training sessions 1 to 15, and only minimal improvements were observed from training sessions 16 to 30. These data suggest that 15 sessions of training (as opposed to a more time-intensive 30 sessions of training) may be sufficient to observe desired improvements in memory. Self-report data also indicated that the prospective memory training program helped to develop memory strategies, and participants reported improvements in remembering tasks in their day-to-day lives. Treatment acceptability and satisfaction ratings were high. Preliminary results of other outcomes measures assessed before, during, and after the prospective memory training program (e.g., delay discounting prior to training, after 15 sessions of training, and again after 30 sessions of training) will be presented. CONCLUSION: These data support the development of this intervention as an adjunctive therapy for substance use disorders.

Financial Support: R01DA035277; T32DA07209

First Name: Meredith

Last Name: Berry

Degrees: MA MD Ph.D etc:: Ph.D

Company Affiliation: Johns Hopkins University School of Medicine

ID: 643
Repeated episodic future thinking produces cumulative reductions of delay discounting in current and former alcohol users

Alexandra Mellis, Virginia Tech Carilion Research Institute

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Alcohol

Topic: Behavior

Abstract: AIM: Episodic Future Thinking (EFT) has been shown to decrease delay discounting (DD); reducing the degree to which reinforcers are devalued with delay to their receipt. In EFT manipulations, participants mentally simulate future episodes at specific points in time and generate associated EFT cues. The present study examined the effects of repeatedly generating future episodes and their associated cues on delay discounting in current and recovering alcohol users. METHODS: Participants (n=50) with with current (n=26) or recent (i.e., last 6 months; n=24) alcohol dependence completed up to six sessions assessing DD over one to four months. At all sessions, participants first completed a $1000 adjusting-amount DD task in the absence of EFT cues (the no-cue condition). Then, participants mentally simulated future episodes and generated cues which were presented during another $1000 DD task (the EFT condition). Natural log normalized k values representing DD rates were analyzed using a mixed effects model including random subject effects. RESULTS: Across all time points, DD was lower in the EFT condition than in the no-cue condition, replicating past effects of EFT on DD (p CONCLUSION: EFT-related reductions in DD grew larger over multiple sessions of EFT. These data suggest that repeatedly generating EFT cues may potentiate the effects of episodically simulating the future in reducing impulsivity and increasing future orientation

Financial Support: SUPPORT: NIH R01AA021529

First Name: Alexandra

Last Name: Mellis

Company Affiliation: Virginia Tech Carilion Research Institute

ID: 645
Hepatitis C virus as a moderator of opioid treatment and past opioid overdose

Samantha Schiavon, University of Alabama

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: AIM: Drug overdoses are the leading cause of accidental death in the U.S. Individuals with a recent overdose are more likely to engage in unsafe injection practices, putting them at increased risk for transmittable infections (i.e., hepatitis C virus; HCV). Experiencing a past overdose has been established as a risk factor for having another potentially fatal overdose. Understanding if HCV is associated with opioid overdose among specific treatments will provide crucial information towards prevention efforts against opioid overdoses. We hypothesized that HCV would moderate the relationship between treatments (inpatient, methadone, buprenorphine, day treatment) and past opioid overdose, such that the presence of HCV would be associated with a stronger positive relationship between the frequency of more intensive treatments (inpatient, methadone, buprenorphine) and past overdose. METHODS: Participants (N = 277) were opioid users from an ongoing study examining the impact of distributing naloxone kits and training to those high risk for an opioid overdose. Baseline measures assessed health, opioid use, experience of an prior opioid overdose, and treatment history. RESULTS: Results revealed that HCV significantly moderated the relationship between inpatient as well as methadone treatment and the probability of reporting a past opioid overdose. Those who were HCV- showed a positive relationship between treatment frequency (inpatient or methadone) and probability of reporting a past overdose; however, those who were HCV+ had a high probability of past overdose regardless of their inpatient or methadone treatment frequency. CONCLUSION: Opioid users treated within inpatient or methadone clinics who are HCV+ or who have been treated within these sites multiple times should be provided extended overdose prevention support as these individuals have likely experienced a past overdose, which previous research has shown places them at greater risk for experiencing a future overdose. This research is supported by the University of Alabama at Birmingham Crowdfunding Network.

Financial Support: This research is supported by the University of Alabama at Birmingham Crowdfunding Network.

First Name: Samantha

Last Name: Schiavon

Degrees: MA MD Ph.D etc:: MA

Company Affiliation: University of Alabama

ID: 646
Sex differences in midazolam self-administration in rats

James Cook, University of Mississippi Medical Center

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Sedative-Hypnotics

Topic: Sex Differences

Abstract: Aim: More women are prescribed benzodiazepines than men and may differ from men in their potential for abuse. There are sex differences in the reinforcing effects of various drugs of abuse, but potential sex differences in self-administration of benzodiazepines has not been examined. This project evaluated whether the short-acting benzodiazepine midazolam functioned as a reinforcer in male and female rats and if there were sex differences in the acquisition of midazolam-maintained responding. Methods: Food-restricted male and female Sprague-Dawley rats were implanted with chronic i.v. catheters. Acquisition of responding maintained by midazolam was assessed across three 5-session blocks. Ascending midazolam doses (0.03, 0.1, & 0.3 mg/kg/infusion) were delivered on a fixed-ratio (FR) 1 schedule in each 5-session block. Following acquisition, midazolam dose-response curves were established for males (0.01-1 mg/kg/infusion) and females (0.03-1.8 mg/kg/infusion) on a FR 2. Results: According to mixed-factor ANOVAs 1.) During acquisition, there was no significant difference in the number of infusions/session for males and females ($p > .05$), 2.) At least one dose of midazolam functioned as a reinforcer for most rats ($p < .0001$), 3.) Females' total intake (mg/kg/session) at their peak dose was significantly greater relative to males ($p < .0001$), and 4.) According to a t-test, the average peak dose maintained by females (0.68 mg/kg/infusion) was significantly higher ($p < .01$) than the average peak dose maintained by males (0.08 mg/kg/infusion). Conclusion: There appeared to be no sex difference in acquisition of midazolam-maintained responding, but female rats required higher doses to function as a reinforcer. The extent to which this difference reflects pharmacodynamic and/or pharmacokinetic differences is unknown. Although speculative, that relatively higher doses of midazolam were required for self-administration by female rats raises the possibility that women may be more likely than men to experience negative consequences associated with high-dose use of benzodiazepines.

Financial Support: Project supported by NIH grants DA011792 & DA033795 awarded to J. K. Rowlett

First Name: James

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Company Affiliation: University of Mississippi Medical Center

ID: 647
The longitudinal association between substance use and depression from pre- to 1-year post substance use treatment

Stacey Daughters, University of North Carolina at Chapel Hill

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Other

Abstract: Aims: Research examining directionality of the relationship between depression and substance use following treatment is limited. Such research can help determine whether depression is a consequence of substance use relapse, or whether depression following treatment triggers relapse. Furthermore, research suggests higher depression comorbidty for illicit drug use compared to alcohol use, suggesting that drug type may moderate the longitudinal relationship between these disorders. The study evaluated (a) crossed and lagged effects between depression and substance use following treatment and (b) whether drug type moderates these effects. Method: Participants (N = 263) in residential treatment were assessed for depression (Beck Depression Inventory) and percentage of days used at post-treatment, 1-, 3-, 6- and 12-month follow-up assessments (time t0 to t4). Linear mixed effects models tested concurrent and lagged effects between depression and substance use and the impact of drug type (i.e. alcohol, marijuana, heroin or cocaine) on this relationship. Results: Results demonstrate a significant concurrent relationship between depression and substance use frequency (B = 0.59, SE = 0.18, t (844) = 3.26, p n = 40; B = 1.50, SE = 0.46, t (124) = 3.30, p n = 223; B = 0.42, SE = 0.20, t (718) = 2.16, p t-1 significantly predicted depression symptoms at t (B = 0.61, SE = 0.17, t (607) = 3.57, p t-1 did not significantly predict substance use frequency at t (B=-0.01, SE = 0.09, z = -0.14, p = n.s.). Drug type did not moderate lagged effects. Conclusions: Heroin users may especially benefit from treatment targeting both depression and substance use. Higher levels of depression may be a consequence, not a cause, of increased substance use following treatment.

Financial Support: National Institute on Drug Abuse. Grant Number: R01DA026424

First Name: Stacey

Last Name: Daughters

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: University of North Carolina at Chapel Hill

Contact Title: Assistant Professor

ID: 649
Total synthesis of salvinorin A-inspired opioids

Samuel Williamson, University of Kansas

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Opiates/Opioids

Topic: Prevention

Abstract: Aims: The natural product salvinorin A is the prototypical non-nitrogenous opioid receptor ligand and has atypical pharmacology compared to classical morphine-derived opioids including dysphoria, sedation and vivid hallucinations. Methods: Our total synthesis approach allows for deliberate functionality introduction at various stages with the goal of systematically exploring their activity using in vitro studies at opioid receptors. Results: We have designed molecules able to overcome potential shortcomings in the drug- like properties of salvinorin A, such as rapid metabolism, so that they may be useful for clinical pharmacotherapies. The most potent synthetic pseudo – neoclerodane had a 9 ± 2 nM EC50, and was synthesized in 9 steps in 10% yield. Conclusions: The modular synthetic protocol developed to access structural motifs inaccessible by semi-synthesis has successfully produced an array of compounds with a deliberately modified tricyclic core as well as the exploration of several different manipulations in order to help determine the key features of the molecule for its high potency and activity. Some of the more efficacious compounds in vivo are now moving into animal models with the goal of developing novel analgesics with reduced abuse liability.

Financial Support: RO1 DA018151 and T32 GM008545

First Name: Samuel

Last Name: Williamson

Company Affiliation: University of Kansas

ID: 650
What influences safe medication practices: Investigating the relationship between parents' intentions, self-efficacy, and knowledge

Megan Curtis, University of Texas Health Science Center

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Adolescent

Abstract: Aim. Prescription drug misuse frequently occurs among adolescents and young adults. Parental guidance and monitoring play a large role in mitigating drug misuse and, potentially, access to prescription drugs. Indeed, 42% of adolescents who reported misusing drugs identified the source as their parent's medicine cabinet. For this reason, we assessed parents' knowledge, self-efficacy, and intentions about medication practices in the home. We hypothesized that parents with high self-efficacy and knowledge about medication safety and abuse liability would have greater intentions to practice safe medication storage. Methods. We developed an online survey based on Social Cognitive Theory. Participants were recruited through flyers and online posts. Data collected was analyzed using bivariate and multivariate analyses. Results. The preliminary sample for the current study was 81.3% female, 37.5% Hispanic, and 71.9% had a college degree. Majority of the parents (84.4%) had 1-2 children living in their home. Bivariate analysis indicated a significant association between intentions to practice safe medication storage and self-efficacy ($r=.49$, p 0.05). A linear regression analysis determined a significant model ($F(1, 30)=4.81$, $p < 0$ .005), and $R2$ showed that 23.9% of the variance in intention is explained by the variance in self-efficacy. Conclusion. Our preliminary results partially support our hypothesis suggesting that when parents are more confident that they may keep their medications safe from their children living at home and endorse greater intentions to practice safe medication storage. These findings contribute to the extant literature on parent medication practices in the home – with the goal of reducing prescription misuse among adolescents and young adults.

Financial Support: Voelcker Biomedical Research Academy at the University of Texas Health at San Antonio.

First Name: Megan

Last Name: Curtis

Degrees: MA MD Ph.D etc:: MA

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ID: 651
Pharmaceutical industry marketing of opioid products to physicians and opioid prescribing: A national study

Scott Hadland, Boston University School of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Policy

Abstract: Aim: Nearly half of all opioid overdoses involve prescription opioids. National efforts seek to reduce excessive opioid prescribing. We aimed to determine whether pharmaceutical industry marketing of opioids to physicians is associated with increased prescribing. Methods: We conducted a linked, individual-level analysis of all US physicians who were recipients of opioid marketing and prescribed opioids under Medicare Part D between January 1, 2014 and December 31, 2014. We identified opioid marketing using the Open Payments database, which exhaustively tabulates all pharmaceutical industry marketing to US physicians in dollar terms. We quantified all transfers of value (i.e., "payments", including meals, travel, speaking fees, honoraria, consulting fees, and education) related to opioid marketing. We linked individual physicians' marketing data to their opioid prescription claims under Medicare Part D. We used linear regression to measure the association between opioid marketing and prescribing, stratifying by physician specialty and adjusting for potential confounders. Results: Among 27,437 physicians linked across the two databases, we identified $9,498,470 distributed through 111,310 payments during 2014. Speaking fees and honoraria comprised 67.7% of all marketing dollars. Meals constituted 92.1% of all payments. Total dollars received were associated with opioid claims (β, 0.264; 95% confidence interval [CI], 0.251-0.277; both variables log-transformed) and the percentage of all prescription claims that were opioids (β, 12.2%; 95% CI, 11.7%-12.7%; payments log-transformed). Each additional meal received was associated with an increase in opioid claims (adjusted β, 40.0 per additional meal; 95% CI, 38.7-41.3) and the percentage of claims that were opioids (adjusted β, 0.797% per additional meal; 95% CI, 0.763-0.830), a finding that held across nearly all specialties. Conclusion: In this first national study of opioid prescribing in relation to pharmaceutical company payments, opioid marketing was associated with increased prescribing. Amidst a national opioid crisis, reexamining the influence of the pharmaceutical industry may be warranted.

Financial Support: Dr. Hadland was supported by a Thrasher Research Fund Early Career Award, and the Loan Repayment Program Award L40 DA042434 (NIH/NIDA). Dr. Cerdá was supported by R01 DA039962 (NIH/NIDA).

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ID: 652
Social influences on remifentanil self-administration in male rats

Rebecca Hofford, University of Kentucky

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Opiates/Opioids

Topic: Behavior

Abstract: AIM: In humans, the initiation of drug-taking typically occurs in the presence of peers, but most preclinical models do not allow for social contact during operant self-administration. Recent advances allow two rats to independently self-administer drugs while remaining in limited social contact through a wire-mesh divider. The current study used these modified social operant chambers to measure self-administration of the short-acting opioid remifentantil in rats using a standard 2-lever procedure. Given the role of endogenous opioids in prosocial behavior, it was hypothesized that paired rats would self-administer more remifentanil than rats self-administering alone. METHODS: Adult male Sprague-Dawley rats (n=28) were randomly assigned to one of 5 groups that differed by self-administration drug (saline or 3 ug/kg/infusion remifentanil) and presence or absence of a peer (paired or alone). Paired remifentanil rats were further divided by peer type (peer self-administering saline or remifentanil). Self-administration for all groups was measured during acquisition, increasing fixed-ratio requirements, and across varying doses. RESULTS: Linear mixed effects analysis indicated that there were main effects of group and session at all phases of self-administration (all $p < 0 .05$) as well as a session x group interaction during acquisition ($F(4,22.94)=4.55$, $p < 0 .05$). Post-hoc analyses examining acquisition indicated that the remifentanil-saline group (rats earning remifentanil paired with a saline peer) acquired self-administration faster than the remifentanil alone group ($F(1,73=6.36$, $p < 0 .05$). Linear regression indicated that active lever configuration also significantly affected acquisition. When both active levers were next to each other (i.e. closest to the wire mesh divider), remifentanil-administering rats had a faster rate of acquisition compared to rats with active levers far from the wire mesh divider ($F(1,52)=20.60$, $p < 0 .05$). CONCLUSION: These data suggest that a social peer can accelerate acquisition of opioid self-administration, although lever placement appears to be an important factor to consider for studies on social influence of drug taking.

Financial Support: DA041755

First Name: Rebecca

Last Name: Hofford

Degrees: MA MD Ph.D etc:: Ph. D.

Company Affiliation: University of Kentucky

ID: 653
Why now? Examining antecedents for substance use initiation among African American adolescents

Tamika Zapolski, Indiana University Purdue University Indianapolis

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Adolescent

Abstract: AIM: Substance use initiation during adolescence is a significant public health concern, as such use is associated with numerous psychological and behavioral health consequences. Although risk models for substance use initiation have been developed, most have inadequately explained risk for African Americans and have rarely included cultural risk factors, such as racial discrimination. Additionally, a growing body of literature suggests that risk factors may differentially predict substance use as a function of age. The current study aimed to 1) examine the influence of both established cross-cultural and culturally specific factors for substance use initiation among African American adolescents, and 2) examine whether risk factors differentially predicted substance use initiation based on developmental stage (i.e., early adolescence, mid adolescence, and late adolescence). METHODS: Participants were 582 African Americans, who completed assessments at ages 11 to 14 and 16 to 21. Logistic regressions were run separately for alcohol, marijuana, and cigarette initiation. RESULTS: After controlling for gender and SES, of the four risk domains (i.e., social risk, attitudinal risk, intrapersonal risk, and cultural risk), cultural risk was the strongest predictor for all substances when developmental stages were combined. However, variation in risk was found based on the developmental stage when initiation occurred. CONCLUSION: Results highlight the importance of cultural risk, specifically racial discrimination, in understanding substance use initiation among African American youth. Additionally, given differences in risk based on age of initiation, intervention programming may be most effective when tailored to specific risk factors based on the age group being served. This study was supported by P30 DA027827 (PI: G. Brody).

Financial Support: This study was supported by P30 DA027827 (PI: G. Brody).

First Name: Tamika

Last Name: Zapolski

Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: Indiana University Purdue University Indianapolis

ID: 654
The effects of the COMT inhibitor tolcapone and gender on alcohol consumption in individuals with alcohol use disorder (AUD)

Jennifer Mitchell, University of California San Francisco

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Alcohol

Topic: Treatment

Abstract: Previous data suggest that hypo-dopaminergic tone in frontal brain regions contributes to impulsivity (1) and by extension to problems with alcohol and drug abuse (2). Consistent with these findings, variations in the dopamine-metabolizing enzyme catechol-O-methyltransferase (COMT) have been linked to behavioral differences in drug and alcohol consumption and decision making (3). The catechol-O-methyltransferase (COMT) inhibitor tolcapone, which increases cortical dopamine tone in frontal brain regions (4), could therefore prove useful in assessing the effects of frontal dopamine levels on behavior. Aims: We administered tolcapone to individuals meeting DSM-V criteria for alcohol use disorder (AUD) to assess whether tolcapone administration attenuates alcohol consumption and subjective high. Methods: Individuals with AUD participated in a randomized, double blind, crossover study in which they received 100mg tolcapone or placebo TID for 5 days. Weekend drinking was recorded daily. On the 5th day, subjects were administered alcohol in a laboratory bar setting and intoxication and subjective high were assessed. Data from 55 (23 female) subjects was used in analysis. Results: We found that 5 days of 100mg TID tolcapone significantly attenuated self-reported alcohol consumption ($n = 55$, $F = 4.36$, $p = .041$), and this effect was driven by female subjects (drug x gender, $n = 55$, $F = 3.33$, $p = .07$). Tolcapone effect on alcohol consumption was significantly correlated with AUDIT scores in females ($n = 23$, $F = 4.66$, $p = .042$), such that females with low AUDIT scores had the greatest reduction in drinking following tolcapone. In addition, while tolcapone significantly attenuated subjective high across all subjects ($n = 51$, $F = 10.2392$, $p = .002$), it decreased intoxication (BAC) only in females ($n = 22$, $T = 2.045$, $p = .053$). Conclusions: These data provide preliminary evidence to suggest that tolcapone may be an advantageous therapeutic for females with AUD.

Financial Support: Department of Defense funds for Alcohol and Substance Abuse Disorders Research Program (W81XWH-11-2-0145, W81XWH-12-2-0048). The authors thank Valeant Pharmaceuticals for the generous donation of study drug.

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Last Name: Mitchell

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: University of California San Francisco

Contact Title: Adjunct Assistant Professor

ID: 655
Frequency of tobacco use in emerging adults is associated with self-reported, but not a laboratory measure of, inattention

Timothy Regan, Texas A&M University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Behavior

Abstract: AIM: The positive association between inattentive symptoms of Attention-Deficit/Hyperactivity Disorder (ADHD) and cigarette smoking in youth is well-documented. Less research has examined how this relationship may differ by inattention's method of assessment, specifically among emerging adults. This cross-sectional research examined whether self-reported ADHD-Inattentive symptoms differentially predicted increasing tobacco use compared to a laboratory measure of inattention. METHODS: Participants were 40 emerging adults (Mage = 21.7 years old, SD = 2.12) recruited from the community surrounding a large state university. 40% (n=16) indicated having received an ADHD diagnosis. Participants completed Conner's Adult ADHD Rating Scale—Self-Report: Long Version (CAARS) and Conner's Continuous Performance Task-III (CPT) as self-report and behavioral measures of inattention, respectively. Tobacco use was assessed using a single Likert item: "Have you ever smoked cigarettes?" (0 = Never to 5 = Several times a day). RESULTS: Linear regression analysis revealed that higher scores on the CAARS Inattentive subscale, assessing self-reported DSM-IV ADHD-Inattentive symptomology, was associated with higher levels of cigarette smoking. CPT errors of omission, assessing behavioral inattention via incorrect responses to non-targets, was not associated with cigarette smoking. Additionally, CPT errors of omission were uncorrelated with either CAARS Inattentive scores or tobacco use. CONCLUSION: These results demonstrate, within the ADHD-Inattentive subtype, self-report and laboratory tasks measure different components of inattention and these components differentially predict tobacco use. More research is needed to determine whether emerging adults with ADHD use tobacco to self-medicate their inattention via the cognitive enhancement aspects associated with nicotine. A larger sample size is forthcoming and may better reveal this relationship across drugs of abuse.

Financial Support: This research was supported by Dr. Sherecce Fields' faculty working fund at Texas A&M University

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Last Name: Regan

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Company Affiliation: Texas A&M University

ID: 656
Deployment, traumatic brain injury, and social influence on recent illicit drug use among U.S. Army Reserve and National Guard couples

Erin Anderson Goodell, Johns Hopkins Bloomberg School of Public Health

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Sex Differences

Abstract: Aim Previous work suggests non-partner social influence on recent drug use by individuals in military couples. This work extends research by exploring the relationship in the context of deployment and resulting traumatic brain injury (TBI). We hypothesize that deployed-soldier couples will be less likely to use drugs, except in the case of TBI symptoms, which will be associated with drug use. Methods Data are from the baseline assessment of Operation: SAFETY (Soldiers And Families Excelling Through the Years), a longitudinal study of Army Reserve/National Guard soldiers and their partners (N=411 couples). Tests of proportions were used to compare prevalence of 1) having illicit drug-using social networks and 2) past-year drug use with drug-using networks, across deployment status and TBI symptom presence. Comparisons were conducted separately by gender for soldiers and civilian partners. Results The proportion of deployed male soldiers with 1+ illicit drug-using ties in their social network is significantly lower than non-deployed male soldiers (17.2% vs 27.6%, $p < 0$ .05). The proportion of deployed female soldiers who used illicit drugs with their social network is marginally significantly lower than non-deployed female soldiers (0% vs 37.5%, p=0.05). Other comparisons across deployment status were not significant for either outcome. Male soldiers who report current TBI symptoms and their female civilian partners are both significantly more likely to use drugs with their social networks, compared to their counterparts with reports of no TBI symptoms (50.0% vs 13.3% and 50.0% vs 19.6%, respectively; both $p < 0$ .05). Conclusion Deployment status by itself is not related to drug use with drug-using social networks in male soldiers, and is related to lower prevalence of use in female soldiers. Both partners within couples where the male soldier reports TBI symptoms may be more likely to be influenced to use illicit drugs with their social network as a form of coping.

Financial Support: Supported by R01-DA034072 to GGH and T32-DA007292.

First Name: Erin

Last Name: Anderson Goodell

Degrees: MA MD Ph.D etc:: S.M.

Company Affiliation: Johns Hopkins Bloomberg School of Public Health

ID: 657
Unraveling individual differences in the HIV-1 transgenic rat: Therapeutic efficacy of methylphenidate

Steven Harrod, University of South Carolina

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Stimulants

Topic: Behavior

Abstract: Despite the heterogeneity of HIV-1 associated neurocognitive disorders (HAND), assignment of categorical diagnoses obfuscates the well-acknowledged variability observed within the population of HIV-1 seropositive individuals. AIM: The present study sought to elucidate the natural heterogeneity in adult HIV-1 transgenic (Tg) rats, without categorical classification, using a pretest-posttest experimental design assessing the therapeutic efficacy of oral self-administration (OSA) of methylphenidate (MPH) on temporal processing, a potential elemental dimension of HAND. METHODS: Adult, ovariectomized female Fischer F344/N (n=20) and HIV-1Tg rats (n=19) were trained to lever-press for sucrose (FR1, 5%; w/v), and temporal processing was assessed using auditory gap-threshold detection before and after OSA of MPH (2.4 ± 0.2 mg/kg); 9 & 14 months of age, respectively. Dendritic spine morphology (backbone length, head diameter, volume) in layer II-III pyramidal neurons in the medial prefrontal cortex was assessed using diOlistic labeling (Helios Gene Gun; Neurolucida 360 software). A brain-behavior relationship between auditory gap threshold detection and dendritic spine morphology was examined (Pearson correlation and regression analyses). RESULTS: Approximately 42% (i.e., 8 out of 19) of HIV-1 Tg animals displayed an improvement in temporal processing following OSA of MPH. HIV-1 Tg animals exhibited a population shift towards longer spines [$\chi2(12)=99.1$, $p\leq0.001$] with decreased head diameter [$\chi2(10)=25.3$, $p\leq0.005$] on lower order branches [$\chi2(4)=708.7$, $p\leq0.001$]; a shift associated with temporal processing impairment. Third, in HIV-1 Tg animals, an increase in dendritic spine backbone length (μm) was associated with increased temporal processing impairment [$\beta=0.766$, $r(13)=0.566$, $p\leq0.05$); a brain/behavior relationship not observed in control animals [$r(14)=-0.228$, $p>0.05$]. CONCLUSION: Understanding the neural mechanisms underlying heterogeneity in neurocognitive impairments (NCI) may lead to individualized therapeutic and diagnostic approaches for the treatment of HAND.

Financial Support: DA013137; HD043680; MH106392; NS100624

First Name: Steven

Last Name: Harrod

Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: University of South Carolina

ID: 658
Perceptions of technology and health resource access among patients in opioid treatment

Ida Chen, University of California San Francisco

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Technology Issues

Abstract: AIM Technology-based interventions have the potential to address barriers and improve access to and engagement in health care among marginalized populations, including populations with substance use disorder (SUD). This study seeks to examine attitudes and preferences related to the use of digital health technology for the purpose of improving access to health information and engagement in health care. METHODS We conducted semi-structured qualitative interviews with 10 patients in an urban opioid treatment program to elicit information about how patients use web resources and electronic devices to access health information. Transcribed interviews were analyzed using a qualitative thematic analysis approach to identify facilitators and barriers to Internet use for health information. RESULTS Three major themes emerged in our analysis: 1) health information associated with medical authority promoted trust among OTP patients; 2) convenience was cited as an advantage of mobile access to health information and increased the likelihood of seeking health information overall; and 3) individuals with unstable housing reported experiencing specific barriers to mobile device and Internet use. Overall, participants acknowledged the utility of technology and mobile phones in health information seeking and health care engagement. CONCLUSION These results suggest that technology-based interventions for vulnerable populations need to make practical considerations for optimal acceptability and accessibility of web-based health resources and technology-based interventions. Further research is needed to examine how barriers to technology use and access can be mitigated.

Financial Support: NIDA 5R21DA038304

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Degrees: MA MD Ph.D etc:: BS

Company Affiliation: University of California San Francisco

ID: 659
Co-use of marijuana and tobacco in blunts or spliffs among a sample of residential addiction treatment clients

Deborah Yip, University of California San Francisco

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Behavior

Abstract: Aim: Co-use of marijuana and tobacco, mixed together in blunts or spliffs, is becoming increasingly common. Limited research has examined the relationship between co-use and cigarette consumption, with mixed results. We examined associations of past month co-use with cigarette smoking behaviors among addiction treatment clients, a population with epidemic rates of smoking. Methods: We surveyed clients in three residential addiction treatment programs in San Francisco, California. Clients reported current cigarette smoking status, whether they had ever smoked tobacco and marijuana together as a blunt/spliff, and whether they had smoked a blunt/spliff in the past month. Additional variables included demographic characteristics, whether they were prescribed medical marijuana, and cigarette smoking behavior (cigarettes per day [CPD], readiness to quit, past year quit attempt, wanting help quitting smoking). Cigarette smoking behaviors were compared by co-use vs. no co-use in the past month using bivariate analyses and logistic regression, adjusting for education, time in treatment, and nesting of clients within programs. Results: Among the full sample (N=211), 68.2% were current cigarette smokers, 52.6% clients have ever co-used tobacco and marijuana, and 9.5% (n=20) had co-used in the past month. Among 20 past month co-users, 16 (80.0%) were current smokers, 2 identified as former smokers, and 9 (47.4%) had been prescribed medical marijuana in the past month. Past month co-use was associated with higher CPD (10.5 vs. 6.8, $p < 0 .001$) and wanting help quitting smoking (AOR=3.58, p=0.048), but not with readiness to quit nor with making a quit attempt in the past year. Conclusion: Clients with past month marijuana and tobacco co-use in blunts/spliffs tended to be heavier cigarette smokers, despite being more likely to want help with quitting smoking. Co-use may also hinder individuals' efforts to quit smoking. As marijuana legalization expands, co-use with tobacco may represent challenges for both addiction treatment and smoking cessation interventions.

Financial Support: TRDRP 25CP-0002 NCI Cancer Center Support Grant P30 CA082103

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Last Name: Yip

Company Affiliation: University of California San Francisco

ID: 660
Sex differences in co-occurring substance use, mental health and pain disorders, in primary care patients diagnosed with opioid use disorders

Celestina Barbosa-Leiker, Washington State University College of Nursing

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Sex Differences

Abstract: Aim: Management of opioid use disorders (OUDs) in primary care (PC) requires simultaneously addressing important co-morbidities. Our aim is to describe and compare the prevalence of comorbid substance use disorders, mental health disorders, and non-cancer pain documented in the electronic health records (EHRs) by sex among patients with OUDs. Methods: Data come from 8 diverse health systems participating in Phase 1 of the NIDA-CTN-0074 sponsored PRimary Care Opioid Use Disorders Treatment Trial (PROUD). The sample for this descriptive analysis includes patients seen in PC in 2016 who had an OUD diagnosis, either active or in remission (3,317 women and 3,061 men). We compare women and men with OUDs regarding the prevalence of ICD diagnoses (obtained from EHRs and/or insurance claims) for substance use disorders (SUDs), mental health (MH) disorders, and non-cancer pain. Results: Among those with OUDs, 40% of women and 42% of men had a documented tobacco use disorder. Women with OUDs had a lower prevalence of comorbid non-opioid SUDs than men with OUDs (37% versus 46%). The prevalence of specific comorbid non-opioid SUDs in women and men with OUDs, respectively, were: alcohol (17% and 23%); cannabis (9% and 17%); stimulant (12% and 17%), other drugs (19% and 22%). In contrast, women with OUDs had a higher prevalence than men with OUDs of most MH diagnoses and non-cancer pain: depression (57% and 40%), anxiety (54% and 38%), serious mental illness (12% and 9%), attention deficit (6% and 7%), eating disorders (1% and 0.2%), and any non-cancer pain (84% and 73%). Conclusion: Among patients with OUDs receiving PC across 8 healthcare systems, tobacco and non-opioid SUDs and MH co-morbidities are common, with men having a higher prevalence of other SUDs than women, but women having a higher prevalence of MH diagnoses and pain conditions than men.

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First Name: Celestina

Last Name: Barbosa-Leiker

Company Affiliation: Washington State University College of Nursing

ID: 661
How do demographics, psychosocial factors, and access to care, lead to receiving treatment among adolescents and young adults at risk for a substance use disorder?

Megan Curtis, University of Texas Health Science Center

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Adolescent

Abstract: Aim. Substance use among adolescents and young adults remains a public health concern in the United States, with nearly 4 million reporting illicit drug use in 2016. In 2014, only 10% of high school students who met criteria for a substance use disorder (SUD) received treatment. To better understand factors associated with receiving treatment for SUD among 12-25 year olds, we conducted an analysis using data from the National Survey on Drug Use and Health (NSDUH). Methods. We pooled data from the 2013 and 2014 NSDUH respondents aged 12-25 who identified with a SUD. The outcome was whether respondents received treatment for alcohol/illicit drug use in the past year. Predictive factors included: gender, age, marital status, race, income, school enrollment, major depressive episodes, enrolled in government assistance programs, insurance coverage, drug use, and perceived need for treatment. Results. Our sample consisted of 6,975 respondents, with 687 identified as receiving treatment in the past year. Logistic regression determined gender (female aOR=0.68;CI:[0.52, 0.88]), age (18-20 aOR=0.65;CI:[0.45, 0.93]), race (black aOR=0.59;CI:[0.41, 0.84]), and income (20-49k aOR=0.72;CI:[0.53, 0.98]) were all significant predictors in receiving treatment. Respondents enrolled in school were less likely to receive treatment (aOR=0.74;CI[0.55, 0.98]). Respondents receiving government assistance (aOR=2.02;CI[1.55, 2.64]) or perceived need for treatment (aOR=1.95;CI[1.09, 3.51]), were more likely to receive treatment. Abuse/dependence of pain relievers (aOR=2.68;CI[1.95, 3.69]), illicit drugs (aOR=3.29; CI[2.46, 4.4]), or marijuana (aOR=1.36;CI[1.1, 1.7]), were significant predictors in receiving treatment; however, abuse/dependence of alcohol was not a significant predictor. Conclusion. Among 12-25 year olds, perceived need for treatment, and abuse/dependence of prescription pain relievers and illicit drugs were predictive factors of receiving treatment for a SUD. Demographic variables were consistent with previous literature. Our study supports the need to increase access to care for substance and behavioral health treatment.

Financial Support: Voelcker Biomedical Research Academy at the University of Texas Health Science Center at San Antonio.

First Name: Megan

Last Name: Curtis

Degrees: MA MD Ph.D etc:: MA

Company Affiliation: University of Texas Health Science Center

ID: 662
Assessing differential risks of cocaine dependence problems based on cocaine onset lag-times

Madhur Chandra, Michigan State University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Stimulants

Topic: Epidemiology

Abstract: Aims: To estimate, for newly incident cocaine users, the risk of developing cocaine-attributable problems and experiences that form part of the cocaine dependence case definition, and to learn which problems surface rapidly (e.g., within three months after first use). Methods: The study population consists of United States community residents age 12 years and older, 2004-14, with nationally representative probability samples recruited and assessed for the National Surveys on Drug Use and Health. The pooled analysis sample included >613,900 participants; 5,805 newly incident cocaine users were identified, with ascertainment of cocaine-attributable problems via standardized modules in confidential computerized self-interviews. Estimates are from analysis-weighted cross-tabulations for each time interval from cocaine onset to the assessment date (1-3 months to 11-12 months). Results: Within three months after first use, an estimated 50% had tried to cut down on cocaine use [95% CI: 41%, 58%], whereas subjectively-felt tolerance was quite infrequent [5%; 95% CI: 2%, 10.6%]. An estimated 13% of these newly incident users experienced emotional problems that they attributed to cocaine [95% CI: 7%, 24%]. Corresponding estimates for cocaine users observed 7-to-12 months after first use are [18%; 95% CI: 12.5%, 25.7%] to [22.8%; 95%CI: 12.8%, 37.4%]. Conclusions: Consistent with evidence that cocaine dependence syndromes form quickly after first use, these risk estimates draw attention to early experiences of trying to cut down after starting. Subjectively-felt tolerance shows more of an insidious onset pattern. New data from 2015-2016 will be added to our final report.

Financial Support: Financial Support: NIDA awards T32DA21129 (MC) and K05DA015799 (JCA).

First Name: Madhur

Last Name: Chandra

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Michigan State University

ID: 663
Factors associated with overdose response self-efficacy among adults who report lifetime opioid use

Kayla Tormohlen, Johns Hopkins Bloomberg School of Public Health

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Other

Abstract: AIM: Rates of unintentional death due to drug overdose now surpass those of motor vehicle deaths. In Baltimore City, opioids account for the most intoxication deaths. Here, overdose response trainings have existed since 2004. This study aimed to assess overdose self-efficacy among adults in Baltimore City who report lifetime opioid use. METHODS: Data come a cross-sectional survey part of a randomized controlled trial designed for adults living with Hepatitis C. Participants were 18 years old or older and reported lifetime injection drug use and heroin use. Overdose self-efficacy (belief that one is capable of effectively responding) was assessed by asking participants if they needed more training before feeling comfortable assisting with an overdose. Univariate statistics were calculated for overdose response self-efficacy, and other individual characteristics and experiences. Bivariate analyses were used to identify variables associated with overdose response self-efficacy (high vs. low). RESULTS: Of the 353 adults, 58% reported low overdose response self-efficacy (e.g. needing additional training before feeling confident helping with an overdose). Ninety percent had witnessed an overdose in their lifetime and 59% witnessed one in the past year. Older age (mean of 50 years vs. 42, $p < 0$ .001), not being homeless in prior 6 months (62% vs. 50%; p=0.03), having witnessed an overdose more than 1 year ago (53% vs. 67%, p=0.03), no experience using naloxone (78% vs. 54%, p
Financial Support: This study was funded by R01DA040488: RCT of a social-network oriented mhealth based intervention to increase access and adherence to HCV treatment and HIV viral suppression. Kayla Tormohlen was supported by a National institute of Drug Abuse training grant (T32DA007292).

First Name: Kayla

Last Name: Tormohlen

Degrees: MA MD Ph.D etc:: MPH

Company Affiliation: Johns Hopkins Bloomberg School of Public Health

ID: 664
Which factors are associated with first opioid and first benzodiazepine prescription in the military health system?

Megan Curtis, University of Texas Health Science Center

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Drug Interactions

Abstract: Aim. The military health care system has seen a dramatic increase in opioid prescriptions. Despite concerns regarding abuse liability and efficacy, they continue to be prescribed concurrently with benzodiazepines, which presents additional safety risks. There is limited research on current opioid and benzodiazepine prescribing practices among active duty service members (ADSM) with low back pain (LBP). To this end, we investigated factors associated with concurrent opioid and benzodiazepine prescribing among ADSM with LBP, in order to identify those most vulnerable to safety issues. Methods. Population included ADSM: not deployed at time of care, diagnosed with LBP, filled first opioid prescription in 2013, and did not receive a benzodiazepine prescription before 2013. Patients with a cancer diagnosis were excluded. Analyses were conducted using a de-identified dataset derived from the Military Health System Mart(M2) database. A logistic regression analysis was conducted to examine the concurrent use of opioids and benzodiazepine by sociodemographics, opioid characteristics, psychiatric and health care factors. Results. Cohort included 18,568 ADSMs, of which 1,560 filled their first opioid and benzodiazepine prescription in the same calendar month. Overall, the cohort was predominantly male (78.15%), between the ages of 18-25 years olds (57.69%), and Army service members (51.06%). Logistic regression determined gender (female aOR=0.70, CI[0.61,0.81]), age (>35 years old aOR=2.14, CI[1.75,2.61]), and sponsor service (Navy aOR=1.25, CI[1.09,1.44]) were significant predictors in concurrent first fill of opioid and benzodiazepine prescriptions. Conclusion. The results are consistent with previous findings among US veterans and civilian populations. To our knowledge, this is one of the first investigations to examine factors associated with benzodiazepine use in ADSMs with LBP receiving opioids. Opioid characteristics are not associated with differences in benzodiazepine prescribing. Future research should continue to explore the role of psychiatric conditions and benzodiazepine co-prescribing. Similarly, the relationship between gender and benzodiazepine must be better understood.

Financial Support: Air Force Research Laboratory FA8650-15-C-6588 P1; NIH NIDA U10 020024; Funding received through the Substance Abuse Working Group (SAWG) of the Joint Program Committee 5 (JPC-5) / Military Operational Medicine Research Program (MOMRP), US Army Medical Research and Materiel Command (USAMRMC).

First Name: Megan

Last Name: Curtis

Degrees: MA MD Ph.D etc:: MA

Company Affiliation: University of Texas Health Science Center

ID: 665
Associations between delay discounting, e-cigarette use, and cigarette smoking

Jeff Stein, Virginia Tech Carilion Research Institute

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Behavior

Abstract: Aims Prior research demonstrates that current cigarette smokers discount delayed rewards more steeply than both never smokers and former smokers. These findings suggest that rapid devaluation of the future promotes smoking through a mechanism in which the negative health consequences of tobacco use are too delayed to discourage smoking. However, little work has quantified delay discounting in relation to e-cigarette (EC) use, a tobacco product associated with fewer health risks. Methods We assessed delay discounting of monetary rewards in 952 participants, stratified by both EC use (current daily users vs. never users) and cigarette smoking status (current daily smokers, former daily smokers, vs. never smokers). Results We observed main effects of both EC use (p p t interaction between EC use and smoking status (p > .25). In planned comparisons, current EC users discounted delayed rewards more steeply than never EC users in both current smokers and former smokers (p .01 in both cases). Moreover, current cigarette smokers discounted delayed rewards more steeply than former and never smokers in both current and never EC users (in all cases, p p > .25, in all cases). All significant group differences remained significant when controlling for demographic differences between groups. Conclusions The present data indicate that EC users discount the future more steeply than those who have never used EC. However, within current EC users, we observed lower levels of discounting in former smokers compared to current smokers. This suggests that those who achieve smoking cessation by EC substitution value the future more than dual product users. Additional longitudinal data from a 6-month follow-up assessment on smoking cessation/relapse and EC initiation/cessation will be presented.

Financial Support: NIH Grant P01 CA200512 02

First Name: Jeff

Last Name: Stein

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Virginia Tech Carilion Research Institute

ID: 666
Vaporized Δ9-tetrahydrocannabinol (THC) modulates intravenous oxycodone self-administration and natural food reward intake

Jacques Nguyen, The Scripps Research Institute

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Marijuana/Cannabinoids

Topic: Behavior

Abstract: Aim: Cannabinoid receptor-mediated signaling has been shown to be involved in mediating the reinforcing effects of natural rewards and of drugs of abuse, such as opioids. The goal of this study was to investigate the effects of Δ9-tetrahydrocannabinol (THC) vapor inhalation, using electronic-cigarette technology, on intravenous oxycodone self-administration under extended access conditions and to elucidate the effect of chronic THC vapor exposure during adolescence on food intake. Methods: Adult male Wistar rats were trained to intravenously self-administer oxycodone (0.15 mg/kg/infusion) under a fixed-ratio 1 (FR1) response contingency during an 8 h session. Following acquisition, the rats were administered vaporized (100 or 200 mg/mL) or injected THC (5 or 10 mg/kg, i.p.) or vehicle for 30 minutes prior to oxycodone self-administration. A separate group of adolescent male Wistar rats (postnatal day 35) were implanted with radiotelemetry transmitters and administered vaporized THC (100mg/mL) or propylene glycol vehicle twice per day for two weeks. Body weights and food intake were monitored into adulthood. Results: Oxycodone self-administration in rats exposed to vaporized or injected THC was significantly decreased compared to vehicle-exposed control rats in a dose-dependent manner. Food intake was significantly increased in rats exposed to chronic THC vapor inhalation during adolescence. Conclusion: These data show the combined effects of THC and oxycodone exposure in rats and further demonstrate the interaction of cannabinoid and opioid reward. These data suggest the potential use of cannabinoids in combination with opioids for mitigating opioid abuse and dependence. Furthermore, chronic THC exposure during adolescent age induced hyperphagia in adulthood, suggesting a possible age-dependent effect of cannabinoid mediation of natural reward.

Financial Support: Funded by the United States Public Health Service National Institutes of Health (R01 DA035281, R01 DA035482 and R44 DA041967)

First Name: Jacques

Last Name: Nguyen

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: The Scripps Research Institute

ID: 667
Heroin type, injecting behavior and HIV transmission: Evidence-based simulation model provides insights from the past into the future

Georgiy Bobashev, RTI International

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: AIDS/Immune

Abstract: AIM By using mathematical modeling to show how different heroin formulations (black tar and white powder) can affect HIV transmission in the context of past and present injecting practices. METHODS An agent-based model was developed to evaluate HIV and HCV transmission in the context of injecting behaviors of black tar and white powder heroin. Sexual transmission was modeled through the background incidence. The model describes typical communities of heroin users across the United States, aka “Heroin towns”, with behaviors informed by ethnographic research. Risks of HIV transmission associated with different behaviors (frequency sharing, sharing with strangers, syringe types, multiple injections, etc.) were estimated using probabilistic modeling linking multiple peer-reviewed evidence. RESULTS Simulation analysis shows that the HIV epidemics could be strongly affected by the type of heroin used among high risk population. Heating of black tar heroin and additional rinsing can substantially decrease person-to-person HIV transmission. The effect is much stronger in high-risk compared with low-risk populations. In a population of injectors with mixed low-risk and high risk clusters we show that local HIV outbreaks could occur even when the overall incidence is low. The results are dependent on evidence-based assumptions and robustly support harm-reduction measures focused on the reduction in syringe sharing, rinsing syringes, using low-dead-space syringes, and heating the injected solution. The findings are generalizable to heroin on sale in Europe where it is prepared differently (heated with acid). CONCLUSION Our models suggest that further domination of white powder heroin on the drug market combined with an increase in use among general population can provide multiple consequences: (1) increase the incidence of overdose and (2) increase the rate of HIV incidence with a potential for HIV epidemic moving into the general population, which until recently was considered unlikely.

Financial Support: 5R01DA037820-02 from NIDA (Ciccarone PI)

First Name: Georgiy

Last Name: Bobashev

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: RTI International

ID: 668
Sex differences in the effects of cannabis on simulated driving performance

Andrew Fares, Centre for Addiction and Mental Health

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Sex Differences

Abstract: Aim: To evaluate whether males and females differ in their driving simulator performance under the influence of cannabis. Methods: Data were obtained in a double-blind, placebo-controlled, randomized clinical trial that recruited young adults aged 19-25 years with a valid drivers' license who smoked cannabis 1-4 days per week (n=61 active, 31 placebo). They were randomized to smoke an active (12.5% THC) or placebo (0.009% THC) cannabis cigarette ad libitum. Blood samples were collected at baseline and at regular intervals following cannabis exposure to measure levels of Δ9-tetrahydrocannabinol (THC) and metabolites. Driving trials occurred at baseline and 30 minutes after cannabis exposure. Main outcome variables included mean speed and standard deviation of lateral position for the overall scenario and on a straightaway (i.e., no traffic). Each driving assessment included two simulation trials, one of which was conducted under conditions of divided-attention. Difference scores were calculated for each driving outcome (baseline – 30 min performance), and two-way ANOVAs (sex by drug condition) were conducted to evaluate if cannabis differentially affected the driving behavior of males and females (sex by drug condition interaction). Results: The mean whole-blood THC concentration in the active group at the time of driving was twice as high in males compared to females (10.6 vs. 4.8 ng/mL; $t(59)=2.4$, $p=0.018$). For mean speed on a straightaway under divided-attention conditions, there was a significant main effect of condition [$F(1,87)=7.385$, $p=0.008$] and of sex [$F(1,87)=7.289$, $p=0.008$]. There was also a main effect of condition for overall mean speed under divided-attention conditions [$F(1,87)=10.013$, $p=0.002$]. However, there were no significant sex by drug condition interactions ($p>0.1$). Conclusion: No sex differences were apparent in simulated driving under the influence of cannabis, despite males achieving a significantly higher level blood THC concentration. This suggests that impairment may emerge in female drivers at lower blood concentrations of THC.

Financial Support: Canadian Institutes of Health Research

First Name: Andrew

Last Name: Fares

Degrees: MA MD Ph.D etc:: BSc

Company Affiliation: Centre for Addiction and Mental Health

ID: 669
Granulocyte-colony stimulating factor mediates neuronal and behavioral responses to cocaine

Drew Kiraly, Icahn School of Medicine at Mount Sinai

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Stimulants

Topic: AIDS/Immune

Abstract: Aim: There is growing evidence that dysregulation of the immune system plays a role in the pathophysiology of multiple psychiatric disorders including major depressive disorder and schizophrenia. The link between immune changes and pathological drug use behaviors has only recently been investigated. We characterized serum cytokines after cocaine treatment in mice, and then interrogated how changes in cytokines expression may affect cocaine-mediated neuronal and behavioral plasticity. Methods: Serum profiling was performed on male C57/BL6 mice treated with cocaine for ten days. Cocaine-induced c-Fos expression was analyzed in mice pre-treated with G-CSF or saline, who then received a single injection of saline or cocaine. For conditioned place preference (CPP) testing, all animals were treated with a subcutaneous injection of saline or G-CSF on the morning of each day. Behavioral economic threshold task was performed on adult male Sprague-Dawley rats trained to stably self-administer cocaine, before undergoing a two-day threshold test. Group size of 8-12 animals was used for each assay. Results: Analysis of serum from cocaine-treated animals identified G-CSF as increased by cocaine and significantly positively correlated with behavioral response. Injections of G-CSF were found to enhance cocaine induction of the immediate early gene c-Fos in multiple brain regions involved in reward processing following an acute treatment with cocaine. G-CSF-treated animals exhibited enhanced formation of cocaine CPP at lower doses (3.75 & 7.5mg/kg). Finally, G-CSF tested rats tested with on a behavioral economics threshold task were insensitive to increases in cocaine cost, a measure that is indicative of increased motivation to self-administer cocaine. Conclusion: Our results demonstrate that the pleiotropic cytokine G-CSF is elevated after cocaine treatments, and is a potent regulator of cocaine-induced behavioral and neuronal plasticity. Targeting G-CSF or one of its downstream signaling pathways may represent an important possible therapeutic treatment for cocaine use disorder.

Financial Support: NIDA (DA 044308), Brain and Behavior Research Foundation, Leon Levy Foundation, Seaver Family Foundation

First Name: Drew

Last Name: Kiraly

Degrees: MA MD Ph.D etc:: MD, PhD

Company Affiliation: Icahn School of Medicine at Mount Sinai

ID: 670
Reinforcer efficacy of entactogen psychostimulants following extended access self-administration in female rats

Michael Taffe, The Scripps Research Institute

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Club/Designer Drugs

Topic: Behavior

Abstract: Aim: The entactogen-like cathinone derivatives 3,4-methylenedioxymethcathinone (methylone) and 3,4-methylenedioxypentedrone (pentylone) have emerged as substitutes for the class-defining entactogen 3,4-methylenedioxymethamphetamine (MDMA) in human users. Their reinforcing properties remain relatively poorly defined in the preclinical literature. The goal of this study was to determine relative efficacy and potency of amphetamine and cathinone derivatives in female rats that were trained to self-administer MDMA, methylone or pentylone. Methods: Adult female Wistar rats were trained to intravenously self-administer MDMA (0.5 mg/kg/infusion), methylone (0.5 mg/kg/infusion), or pentylone (0.5 mg/kg/infusion) using a fixed-ratio (FR1) response schedule in 6 h sessions. Rats were subjected to dose substitution of the training drugs (0.125-2.5 mg/kg/infusion) and methamphetamine (0.01-0.5 mg/kg/infusion) under a progressive ratio (PR) response contingency. Results: Female rats escalated their self-administration of methylone, and pentylone to approximately a similar extent under 6 h access. Intake of MDMA was slightly lower. In the PR test, methylone and MDMA were equipotent and efficacious whereas pentylone was less potent and more efficacious. An amphetamine analog of pentylone exhibited reduced potency relative to MDMA or methylone and reduced efficacy compared with pentylone. Conclusion: Long-access training results in stable self-administration of entactogen-like stimulants in female rats. The relative abuse liability differs across compounds that may be used for similar subjective properties within the club-drug using population.

Financial Support: Funded by the United States Public Health Service National Institutes of Health (R01DA042211).

First Name: Michael

Last Name: Taffe

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: The Scripps Research Institute

Contact Title: Assistant Professor

ID: 671
Introducing the NIDA core center of excellence in omics, systems genetics, and the addictome

Laura Saba, University of Colorado Anschutz Medical Campus

Abstract Category: Program Descriptions

Abstract Detail: Animal Study

Drug Category: Other (specify)

Topic: Genetics

Abstract: Aim: The purpose of the NIDA P30 Core Center of Excellence in Omics, Systems Genetics, and the Addictome is to empower current and future NIDA researchers to examine the interwoven roles of genetic and environmental variation on drug abuse risk, relapse, and treatment by eliminating many of the technical barriers to analysis. Methods: We will assemble sophisticated omics resources that will give investigators mechanistic and behavioral insights and provide training in omics, systems genetics, and advanced computational/statistical modeling. In the Transcriptome Informatics and Mechanisms research core, we will assemble hundreds of large genome and transcriptome data sets for rodent models of addiction and upgrade methods and tools for quantitation and integration of these data to uncover molecular mechanisms of addiction. In the Systems Analytics and Modeling research core, we will use innovative systems genetics methods to understand the linkage between DNA differences, environmental risks, and the differential risk of drug abuse and relapse. Our Pilot core will catalyze new collaborations among early career investigators in the field of addiction research. Results: We will build The Omics Portal for Addiction Research (OPAR) that integrates old and new transcriptomic datasets with a focus on rat genome and transcriptome datasets, with the long-term goal of improved translational relevance to human addiction. OPAR will also include analytical tools developed by the research cores. Researchers will have access to the latest rat genome, transcriptome, and epigenome data sets matched to powerful multicore GPU-based servers. Conclusions: As we build this resource for reproducible research in addiction, we are seeking input from the research community on how to best meet their needs and wants. Our vision is that the Center can be used a catalyst for building an NIDA Addictome Portal that will include all genomic data relevant to addiction research. Financial Support: Supported by P30DA044223.

Financial Support: Supported by P30DA044223.

First Name: Laura

Last Name: Saba

Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: University of Colorado Anschutz Medical Campus

ID: 672
Clinical and toxicological profile of NBOMESs: A systematic review

Nino Marchi, Center for Drug and Alcohol Research

Abstract Category: Literature Review

Abstract Detail: Human

Drug Category: Club/Designer Drugs

Topic: Prevention

Abstract: Aim: To review the available literature data regarding toxicological detection and clinical symptoms associated with NBOMe use. Method: We systematically reviewed the literature that addresses clinical and laboratory/toxicological aspects of the use of NBOMes. The search occurred in the databases Embase, Pubmed, PsycInfo and Cochrane, during the month of March 2017. Results: The initial database search identified 2,814 non-duplicated publications, among which 45 reached inclusion criteria. The analytical methods most used for the identification of NBOMes were chromatographic methods using biological matrices such as blood, urine and oral fluid. The toxicological analyses of the papers reviewed identified twelve different chemical structures of NBOMes. Clinical studies described a total of 70 cases (64.3% men and 11.4% women, mean age of 22.5 years). The most commonly reported route of administration was the oral route, followed by nasal and intravenous. Commonly reported adverse events were generalized convulsions, aggressive behavior, severe agitation, hallucinations, panic, speech disorders, tachycardia, hypertonia, hypertension, hyperthermia, and mydriasis. Conclusion: As far as we know, this is the first systematic review about NBOMes regarding laboratory/toxicological findings. The range of substances synthesized and the variability of their formulation hampers their toxicological identification. The understanding of the clinical and toxicological profile, as well as the identification of the intoxication of NBOMes may be a determining factor in the effectiveness of care, especially in health services.

Financial Support: None

First Name: Nino

Last Name: Marchi

Company Affiliation: Center for Drug and Alcohol Research

ID: 674
A real-world efficacy and safety comparison of CAM2038 vs SL BPN/NX for the treatment of patients with OUD who inject opioids

Genie Bailey, SSTAR: Stanley Street Treatment & Resources, Inc

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: Aims: To report subgroup analyses for people who inject opioids (PWIO; n=224) from a phase 3 trial comparing the extended-release depot injectable buprenorphine (CAM2038) to sublingual buprenorphine/naloxone (SL BPN/NX) among treatment-seeking adults with moderate-to-severe Opioid Use Disorder (OUD) (n=428). Methods: This 24-week, randomized, double-blind, double-dummy, active-controlled, parallel group, multi-center study, was designed to evaluate the non-inferiority of CAM2038 compared to an existing standard of care, SL BPN/NX, in initiation and maintenance treatment with buprenorphine. The prespecified primary endpoint was responder rate, with a responder defined as a participant with 80% opioid-negative urine samples, confirmed by self-report, from weeks 9-24, with negative urines at weeks 12 and 24. A post-hoc subgroup analysis was conducted (ITT population) to access efficacy of CAM2038 compared to SL BPN/NX in PWIO. Results: Primary analyses demonstrated that CAM2038 (17.8%) was non-inferior to SL BPN/NX (14.4%) on the primary endpoint of responder rate. The percentage of responders for PWIO was higher in the CAM2038 group (15.8%) compared to SL BPN/NX (7.3%) (CI 0.2%, 16.8%; p=0.047). All five participants with overdose (4, accidental; 1 intentional) were in the SL BPN/NX group. Heroin was involved in the 3 of the 4 cases of accidental overdose. There were no clinically meaningful differences between the treatments for serious adverse events (SAEs); however, all SAEs in the Infections and Infestations System Organ Class, including abscess (1, limb; 1 subcutaneous), acute hepatitis C (n=1), cellulitis (n=1), localized infection (n=1), osteomyelitis (n=1), pneumonia (n=1), and sepsis (n=1), occurred in the SL BPN/NX group, suggesting ongoing IV drug use in this group. The retention rate for PWIO was higher in the CAM2038 group (55%) compared to SL BPN/NX group (43%). Conclusion: Treatment with CAM2038 in PWIO is effective in reducing illicit opioid use and may improve outcomes, decreasing the occurrence of skin, soft tissue and blood bacterial infections, and overdose.

Financial Support: Braeburn Pharmaceuticals

First Name: Genie

Last Name: Bailey

Degrees: MA MD Ph.D etc:: MD

Company Affiliation: SSTAR: Stanley Street Treatment & Resources, Inc

ID: 675
Polydrug cannabis use and cannabis dependence: Toward a "latent class with distal outcome" approach

Karl Alcover, Michigan State University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Epidemiology

Abstract: Aim: Roughly 1-in-10 cannabis users in the United States (US) develop cannabis dependence (CD), irrespective of other IRD use. A growing body of evidence suggests that "cannabis only" users have lower risk of drug-related problems (e.g., CD syndrome) compared to cannabis users who also use any other internationally regulated drugs (IRD). However, little is known to what extent this estimate is influenced by the use of other IRD. In this study, we aim to investigate potential heterogeneity of risk profiles within cannabis subgroups, identified based on the IRD onset soon after cannabis. Method. A nationally representative sample of 3283 newly incident cannabis users was identified in a study population of non-institutionalized civilian US residents aged 12+ for the US National Surveys on Drug Use and Health, 2012-14, after multistage sampling and standardized computer-assisted interviews. Using latent class analysis, we identified four latent classes, with one known class consisting of "cannabis only" users. We then estimated the risk of CD for each latent class. Results. Four classes were identified: cannabis only users (class 1, 93% of all new initiates); analgesics users (class 2, 3%); inhalants users (class 3, 2%); hallucinogens users (class 4, 2%). The CD risk estimates are 2.2% (95%CI=1.7%,2.7%) for class1, 17.2%(95%CI=9.0%,25.5%) for class2, 8.0% (95%CI=1.8%,14.1%) for class3, and 16.4% (95%CI=7.9%,24.9%) for class4. Weighted to the US population, the risk estimates are 1.9%(95%CI=1.9%,1.9%) for class 1, 20.9%(95%CI=20.7%,21.1%) for class 2, 9.2%(95%CI=9.0%,9.4%) for class 3, and 15.6%(95%CI=15.4%,15.8%) for class 4. Conclusion. Before discussion, we note methods issues that will confront investigators seeking to improve this work, including self-report measures of drug-related behavior and absence of toxicological assays. The evidence is consistent with prior findings that cannabis initiates who then use other IRD have increased risk of dependence. Here, we see excess risk of dependence of the cannabis type.

Financial Support: NIDA K05DA015799(JCA) & T32DA021129 (KCA).

First Name: Karl

Last Name: Alcover

Company Affiliation: Michigan State University

ID: 676
Trends in adolescent heroin and injection drug use (IDU) in 13 US cities, 1999 to 2015

Sherri-Chanelle Brighthaupt, Johns Hopkins Bloomberg School of Public Health, Department of Mental Health

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: AIM.Although heroin use and IDU has consistently been low and stable among US adolescents (~2%), national estimates may mask variation at the local level. We aimed to assess trends in heroin use and IDU among high school students in 13 US cities with publicly available data from 1999 to 2015. METHODS.We used local Youth Risk Behavior Survey (YRBS) data to estimate the biennial prevalence (and 95% confidence intervals, not shown here) of lifetime heroin use and IDU among 9th-12th grade students in 13 cities (n>230,000). We used all available data from 1999 to 2015. We used logistic regression models to test for linear and quadratic trends in the pooled sample (all cities) and in each city. RESULTS.Pooled analyses show a statistically significant linear increase (p CONCLUSION.The prevalence of heroin use increased from 1999-2015 among high school students in three US cities: Milwaukee, Chicago, and New York. The latter also had an increase in IDU. Some US cities may have a historically entrenched culture of heroin use, and further research with locally-representative samples is needed to inform public health policy and practice.

Financial Support: This research was supported by Grant 4T32DA007292-24 from the National Institute on Drug Abuse (PI: Renee M. Johnson).

First Name: Sherri-Chanelle

Last Name: Brighthaupt

Degrees: MA MD Ph.D etc:: BA

Company Affiliation: Johns Hopkins Bloomberg School of Public Health, Department of Mental Health

ID: 677
Perceptions of primary care services among Veterans with opioid use disorder in the Veterans Health Administration

Adam Gordon, University of Utah

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Adolescent

Abstract: AIM: Opioid use disorder (OUD) is increasingly managed in primary care settings. The perspectives of patients with OUD are largely unknown. In a national sample of Veterans Health Administration (VHA) outpatients diagnosed with OUD, we hypothesized that patients with OUD would report less positive primary care experiences than patients without OUD, and these differences would be attenuated by the provision of buprenorphine. METHODS: We examined data from the 2013-2015 survey of healthcare experiences of patients (SHEP), a national ongoing survey of VHA patient experiences, administered by mail from October 2012 to September 2015. We used VHA administrative records to identify survey respondents with past year OUD diagnoses (ICD-9=304.0x, 305.5x) and prescriptions (buprenorphine, buprenorphine/naloxone). We used multivariable logistic regressions to model reporting of positive versus non-positive experiences in 8 primary care domains: access, communication, office staff helpfulness/courtesy, provider rating, comprehensiveness, care coordination, medication shared decision-making, and self-management support. RESULTS: The sample included 3,591 Veterans with OUD, of whom 761 (21%) received buprenorphine. Compared to Veterans without OUD (n=818,147), OUD diagnosed Veterans were younger, more likely to be black, had more education, and greater medical and psychiatric morbidity. Compared to other Veterans with OUD, those receiving buprenorphine were younger and less likely to be black. In 7 domains (all but shared decision-making), Veterans with OUD were less likely to report positive primary care experiences, with adjusted odds ratios ranging from 0.73 (95%CI=0.66-0.81) to 0.89 (95%CI=0.80-0.98) across domains. In the subsample of veterans diagnosed with OUD, there were no statistically significant differences in primary care experiences for veterans with buprenorphine compared to those without. CONCLUSION: A national sample of Veterans with OUD reported less positive primary care experiences than Veterans without OUD. As there are increased efforts to prescribe and monitor buprenorphine treatment in primary care, it is important to attend

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ID: 678
Hepatitis screening through the analysis of liver enzymes in drug users

Octavio Campollo, Universidad de Guadalajara

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Other

Abstract: Viral hepatitis infection has important clinical implications since carriers may be a source of hepatitis infection and may also develop cirrhosis and hepatocelular carcinoma. The diagnosis of viral hepatitis in drug users may be difficult to attain since many factors surround the fulfillment of national recommendations and clinical guidelines. AIM to test whether hepatitis infection can be detected through a simple screen of liver enzymes (AST, ALT, GGT) and liver function tests (LFT). METHODOLOGY. We analyzed blood from 159 patients attending addiction treatment clinics from Centros de Integración Juvenil (CIJ) in West Central Mexico. Samples were analyzed for hepatitis B surface antigen (HBsAg), Hepatitis B anticore antibody (anti HBc), antibody to hepatitis C (HCV) and antibody to HIV. Hepatitis B virus (HBV) DNA was detected by nested PCR of HBV genome to identify those cases with occult hepatitis B (OHBV) infection. Liver function tests were performed in all samples . RESULTS.- There were 19 (11.9%) cases positive for HCV, 13 (8.2%) cases positive for HBV, 19 (11.9%) cases of occult HBV, and 4 cases (2.5%) with HIV. We formed several groups for analysis: pure HCV infection, total HCV infection, HCV-HBV co-infection, pure occult HBV infection, total occult HBV and HIV infection. There was a significant elevation of levels of AST *,**, ALT ,***, GGT *, ***, AP*, and TB* in patients with pure and total HCV infection compared with patients with no infection and patients with OHBV. Other factors like alcohol or cannabis use did not show significant elevations. CONCLUSIONS HCV infection should be suspected in drug users with significant elevations of liver enzymes where confirmatory tests should proceed. Diagnostic tests for hepatitis infections should be performed as recommended. Screening of all drug users by liver enzymes could identify HCV infected patients before further tests are done. (* $p < 0.05$, ** $p < 0.005$, *** $p < 0.000$)

Financial Support: CONACYT (Consejo Nacional de tecnología),; University of Guadalajara

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ID: 679
Protein kinase Cβ inhibitors alter responding for amphetamine in rats under different schedules of reinforcement

Rachel Altshuler, University of Michigan

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Stimulants

Topic: Behavior

Abstract: Aim: Amphetamines (AMPH) are a class of stimulants that elicit their reinforcing response through the dysregulation of extracellular dopamine levels. Protein kinase Cβ (PKCβ) has been shown to be important for AMPH action in the brain. Studies have demonstrated that inhibiting PKCβ through genetic and pharmacologic manipulations results in a decrease in AMPH-stimulated dopamine release and locomotor activity. We hypothesized that PKCβ inhibitors would also alter AMPH reinforcement. The objective of this study is to determine the effect of PKCβ inhibitors on AMPH self-administration using a fixed-ratio (FR) and a progressive ratio (PR) schedules of reinforcement. Methods: Male Sprague-Dawley rats (N=28) were implanted with intravenous catheters and trained to respond on an FR schedule of reinforcement to earn either i.v. infusions of 0.032 mg/kg/infusion AMPH or sucrose pellets. They were pretreated with enzastaurin, a selective PKCβ inhibitor, 3 or 18 hrs prior to a self-administration session. A second group of rats were trained to self-administer AMPH or sucrose under an FR schedule, then transferred to a PR schedule of reinforcement. They were pretreated with enzastaurin 18 hrs prior to the self-administration session to determine the effects of the inhibitors on the breakpoints. Results: An 18-hr enzastaurin pretreatment, but not a 3-hr pretreatment, significantly decreased responding for AMPH by 80% without altering responding for sucrose. Rats pretreated with enzastaurin 18 hrs prior to a PR session had a decreased breakpoint when responding for AMPH, but enzastaurin did not alter the breakpoint for sucrose self-administration. Conclusions: The results demonstrate that a PKCβ inhibitor can selectively decrease AMPH reinforcement under different schedules of reinforcement. PKCβ inhibitors also decrease the reinforcing efficacy of AMPH without altering the reinforcing efficacy of sucrose. These data suggest that PKCβ inhibitors should be further developed as a potential therapeutic for AMPH-use disorder.

Financial Support: NIH grant R01 DA11697, T32-GM007767, Benedict and Diana Lucchesi Graduate Fellowship

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ID: 680
Effects of device voltage level on e-cigarette appeal differs by e-cigarette dependence

Elaine Qian, University of Southern California

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Dependence

Abstract: Aim: Prior survey research among electronic (e-) cigarette users suggests that higher device voltage can enhance subjective vaping appeal. In this controlled laboratory human behavioral pharmacology experiment, we systematically tested the effects of device voltage on e-cigarette product appeal, and assessed whether voltage-related effects on appeal were amplified in at-risk e-cigarette users (i.e., those with e-cigarette dependence). Methods: During a single laboratory session, young adult e-cigarette users (N=100; Female=35%; Mean Age=25.4; current smokers=53%) completed the Penn State E-Cigarette Dependence Index (PSECD) and then sampled 40 standardized e-cigarette doses that varied by several product characteristics including flavor, nicotine level, and device voltage. Following each sample trial, participants completed three self-report ratings (liking, disliking, willingness-to-use-again), which were used to calculate a composite “appeal” score. Multilevel analyses examined the main effect of voltage (3.3V and 4.3V)—and the interactive effects of voltage and e-cigarette dependence (Any dependence [PSECD score = 4-14] and No dependence [PSECD score = 0-3])—on appeal. Results: The higher voltage (vs. lower voltage) produced greater ratings of appeal among all participants ($p < 0$ .001). Further, there was a significant interaction between voltage and e-cigarette dependence ($p = 0.012$). At the higher voltage, participants with any e-cigarette dependence reported greater appeal compared to those with no dependence ($p=0.017$). At the lower voltage, there was no significant difference between dependence groups ($p=0.282$). Conclusions: The current results suggest that e-cigarette device voltage may influence the appeal of vaping, and that individuals with e-cigarette dependence may find higher levels of voltage particularly appealing. These data can inform policies that seek to regulate specific product characteristics that may disproportionately increase the likelihood of problematic e-cigarette use in at-risk populations. Financial Support: Supported by the National Institute of Health [P50 DA036106-02S1]

Financial Support: Supported by the National Institute of Health [P50 DA036106-02S1]

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ID: 681
Receipt of medications for opioid use disorder among youth: Data from 8 health systems

Kathy Bradley, Kaiser Permanente Washington Health Research Institute

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Adolescent

Abstract: Aim: Increased access to primary care (PC) treatment with medications for opioid use disorder (MOUD) is recommended to address the opioid epidemic. While youth (16-25 year olds) have been particularly affected by this epidemic, important differences between adolescents (16-17 year olds) and young adults (18-25 year olds) suggest these groups should be evaluated separately. This study examines youth with opioid use disorder (OUD) diagnoses, stratified by age, in 8 large US health systems to determine: (1) the prevalence of OUD; and (2) the receipt of MOUD. Methods: Data were from the PRimary care Opioid Use Disorders (PROUD) study, a NIDA-CTN-0074 sponsored pragmatic trial testing if collaborative care can increase MOUD in primary care. Phase 1 of PROUD included patients ≥16 years old who visited primary care clinics in 8 health systems. All data including OUD diagnosis and MOUD data were collected from electronic health records and insurance claims. We describe OUD prevalence and receipt of two MOUDs available in general medical settings (buprenorphine and injectable naltrexone) among 16-17 year olds and 18-25 year olds seen during 2015 (n=114,266). Methadone maintenance treatment is rarely delivered in PC and not included. Results: Overall, 0.17% (42/24,265) of 16-17 year olds and 1.1% (n=954/90,001) of 18-25 year olds had a documented diagnosis of OUD. Of those with an OUD, 14% of 16-17 year olds (14% buprenorphine, 2% injectable naltrexone – not mutually exclusive) and 40% of 18-25 year olds received MOUD (39% buprenorphine, 2% injectable naltrexone). Conclusions: We found that overall prevalence of recognized OUDs documented in PC is low among youth. Moreover, less than one in seven 16-17 year olds and only two out of five 18-25 year olds with an OUD received MOUD. To address rising deaths among youth with OUD, increased engagement in care and delivery of MOUD is needed.

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ID: 682
Real-time assessment of marijuana craving, mood, and anxiety among college student marijuana users

Kristina Phillips, University of Northern Colorado

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Other

Abstract: Aim: Heavy marijuana use is common among college students and can lead to a host of negative outcomes, including cognitive deficits and negative affect. Marijuana craving has been understudied and may vary depending on one's immediate context. Past research has shown that marijuana cues can elicit craving and anxiety. Ingestion of marijuana has been found to elicit anxiety, however results vary based on a host of factors, including expectancies and experience. We aimed to explore relationships between marijuana craving and subjective reports of emotional state (anxiety and mood) in-the-moment using ecological momentary assessment (EMA). Methods: Active college-student marijuana users (n = 52) were recruited and completed a baseline assessment that lasted approximately 90 minutes. Participants were trained on the signal-contingent EMA protocol and responded to three random prompts each day for two weeks through a smartphone app. Each EMA prompt included 10-12 questions (dependent on skip logic). For the purposes of the current presentation, marijuana craving, mood, and anxiety were assessed at each timepoint on 0-10 scale. Results: The sample was 58% female, 57% Caucasian, and averaged 20.04 (SD = 1.49) years of age. Participants were heavy marijuana users, using 24 days out of the last 30. Using multi-level modeling, we examined the contribution of anxiety and mood to participant craving within the same moment. After controlling for day of the week and EMA session number, anxiety was positively related to participant craving within the same moment ($B = 0.16$, $p < .001$). Mood was not significantly associated with craving ($p = .92$). Conclusion: Results suggest a relationship between craving and anxiety when assessed in real time. Future studies should examine how marijuana craving and anxiety may vary based on individual characteristics (e.g., expectancies, withdrawal), as well as the direction of effects across time.

Financial Support: This study was supported by NIDA R15DA041656.

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Contact Title: Assistant Professor

ID: 683
Factors predicting arrest in a jail-based vs. a community-based methadone treatment study

Sharon Kelly, Friends Research Institute

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: Aim: To examine the differences in factors predicting arrest between the samples of research participants enrolled in a jail-based vs. a community-based methadone maintenance treatment (MMT) study. Methods: In our previous study of patient-centered MMT (Schwartz et al., 2017), we found the significant predictors of arrest determined from official records during the 12-month post-treatment entry follow-up were: more lifetime months of incarceration; having been arrested in the year prior to treatment; and younger age. Thus, variance in outcome of MMT on arrest can be explained by characteristics of the sample at treatment entry. In the present study, we compared baseline characteristics of opioid-addicted participants enrolled in two separate random-assignment studies of MMT in Baltimore, MD. One study (N = 225) enrolled newly-arrested patients in the Baltimore City jail, the other study (N = 295) enrolled patients newly-admitted to two community MMT programs. Analyses of variance and chi-square tests of independence were used to compare the two samples in terms of the above-mentioned predictors of arrest. Results: Compared to the community sample, participants in the jail sample were significantly younger, had more lifetime months of incarceration, and were more likely to have been arrested in the year prior study enrollment (all ps
Financial Support: U01 DA0136368

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ID: 684
Evaluating the administration of naloxone in hospital settings

Kelly Barth, Medical University of South Carolina

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Prevention

Abstract: Aim: To determine the proportion of inpatient administrations of naloxone that are due to preventable adverse drug reactions (ADRs). Methods: The Drug Information Center staff from a large academic hospital reviewed the hospital pharmacy database for all inpatient and Emergency Department (ED) naloxone administrations from July 1, 2017 through June 30, 2017. Chart abstractions were performed on all instances of naloxone administration and classified as to whether or not it was related to an ADR and whether or not the ADR was "preventable." Descriptive statistics were used. Results: From July 1, 2016 through June 30, 2017, 532 patients received 959 doses of naloxone. Of those dose administrations, 343 occurred in the ED (211 patients), 213 occurred in surgical or procedure areas (108 patients), and 403 occurred on inpatient areas of the hospital (213 patients). If a patient received multiple doses of naloxone at one time, it was counted as one "instance." There were 547 "instances" of naloxone administration. Of those, 142 (26%) were classified as an ADR. The remaining were classified as peri-operative anesthesia reversal; use for altered mental status where a patient did not improve following naloxone administration; or patients with intentional drug overdose outside the hospital. Of the 142 ADRs, 73 (51.4%) were classified as "preventable," meaning that the patient was (a) receiving a high morphine equivalent dose of opioids, (b) on CNS depressants in combination with opioids, or (c) other medical record documentation suggesting the a lower opioid dose should have been used. Conclusion: A small proportion of naloxone administrations were classified as due to ADRs, but over half of all ADRs were classified as preventable. This highlights an opportunity for preventative efforts to decrease the need for inpatient naloxone administration and the need to further evaluate the use of naloxone outside of ADRs.

Financial Support: Barth: K23 DA039328-01A1

First Name: Kelly

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Company Affiliation: Medical University of South Carolina

ID: 685
Phase 3 trial comparing depot buprenorphine (CAM2038) to sublingual buprenorphine/naloxone for OUD treatment: Subanalysis among persons with heroin as the primary opioid of abuse

Michael Frost, The Frost Medical Group

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: Aims: To report subgroup analyses for participants identifying heroin as the primary opioid of abuse (n=303) from a phase 3 trial comparing the extended-release depot injectable buprenorphine (CAM2038) to sublingual buprenorphine/naloxone (SL BPN/NX) in initiation and maintenance treatment of adults with moderate-to-severe Opioid Use Disorder (OUD) (n=428). Methods: This 24-week, randomized, double-blind, double-dummy, active-controlled, parallel group, multi-center study, designed to evaluate the non-inferiority of CAM2038 compared to an existing standard of care, SL BPN/NX, in initiation and maintenance treatment with buprenorphine. The prespecified primary endpoint was responder rate, with a responder defined as a participant with 80% opioid-negative urine samples, confirmed by self-report, from weeks 9-24, with negative urines at weeks 12 and 24. The study involved four phases: Screening, Phase 1 (weekly visits), Phase 2 (monthly visits), and Follow-up. A post-hoc analysis was conducted (ITT population) to access efficacy of CAM2038 compared to SL BPN/NX in treating participants identifying heroin as the primary opioid of abuse at baseline. Results: Primary analyses demonstrated that CAM2038 (17.8%) was non-inferior to SL BPN/NX (14.4%) on the primary endpoint of responder rate. The responder rate among opioid dependent participants using heroin at baseline was higher in the CAM2038 group (15.8%) compared to SL BPN/NX group (4.6%) (CI 4.5%, 17.9%; p=0.001; non-inferiority). The mean percentage of urine samples and self-report negative for illicit opioids also was higher in the CAM2038 group (29.3%) versus SL BPN/NX group (14.5%) (p Conclusions: Treatment with CAM2038 was shown to increase the likelihood of no illicit opioid-use compared to current standard treatment with SL BPN/NX in participants whose primary opioid of abuse was heroin.

Financial Support: Braeburn Pharmaceuticals

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ID: 686
Substance use and mental health trends in the adolescent population in Ontario, Canada

Hayley Hamilton, Centre for Addiction and Mental Health

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Adolescent

Abstract: AIMS: Public health monitoring of substance use and mental health is important to identify trends and emerging issues within the population. The objective of this study is to explore recent trends in adolescent substance use (alcohol, cannabis, tobacco, and nonmedical prescription opioid use) and mental health, identify emerging drugs and examine correlates within Ontario, Canada. METHODS: Data were derived from the Ontario Student Drug Use and Health Survey (OSDUHS), a biennial province-wide survey of students in grades 7-12 attending publicly funded schools in Ontario. This repeated cross-sectional survey, ongoing since 1977, utilizes a stratified two-stage (school, class) cluster design. The sample size has ranged from 4,211 to 10,426 students over the last two decades. RESULTS: Alcohol, cannabis, tobacco cigarettes, and nonmedical use of prescription opioids have shown overall decreases in yearly prevalence over the past decade. Despite these positive findings, there is evidence of increases in mental health concerns (e.g., psychological distress) among adolescents. Also of concern are substances that may be emerging within the population (e.g., fentanyl), new alternative smoking devices (e.g., e-cigarettes), and diverse routes of cannabis administration. CONCLUSION: Evidence of declines in certain types of drug use appears to be offset by evidence of new emerging drugs and increases in mental health concerns among adolescent students. This highlights the need for continued public health monitoring of substance use along with mental health and well-being within the adolescent population.

Financial Support: Partial funding through ongoing support from the Ontario Ministry of Health and Long-Term Care, and through special grants for targeted questions.

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ID: 687
Male-female differences in heroin incidence

Samantha Bauer, Michigan State University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: Aim: A general male excess is seen in incidence estimates for underage drinking and other drug use, with recent contrary evidence for several drugs (e.g., alcohol). Here, we aim to estimate male-female differences in heroin incidence, based on recent nationally representative samples of young people recruited during the United States current opioid epidemic (US). Methods: Study population samples for US National Surveys on Drug Use and Health, 2005-15, included ~260, 000 non-institutionalized US civilians 12-to-21 years of age. After sampling and recruitment, computer-assisted self-interviews identified 300 newly incident heroin users, all with 1st heroin use within 0-12 months before assessment. In our epidemiological mutoscope work-up of incidence estimates specific for sex, age, and year (birth cohort approximation), analysis-weighted contingency tables involved variances from Taylor series linearization. Results: Estimated male-female differences highlight shifts from a traditional male excess in early years of adolescence, with a male excess emerging at mid-adolescence. For example, at age 15 years, estimated incidence for females is 97 newly incident heroin users per 100K population each year (95% confidence interval, CI = 55, 171) versus the corresponding male estimate at 62 per 100K population/year. Age-specific estimates across older strata, age-by-age, are uniformly smaller for females as compared to males (p Conclusion: Female-male parity in heroin incidence during early adolescence is a novel finding, disclosed by this study's fine-grained age-specific approach versus the age 12-17 aggregation of prior studies. We speculate about sex and gender differences in heroin-related experiences such heroin exposure opportunities. Limitations such as self-report deserve mention. We conclude that the current US heroin epidemic is characterized by unexpected male-female variations that are not noticed with traditional research approaches. Sex- and gender-specific public health preventive interventions (i.e., tailored differently) might be needed to prevent emergence of a female excess risk before age 16 years.

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ID: 688
A more dangerous ‘heroin’: Lessons learned from anthropological research in four US heroin and fentanyl hotspots

Daniel Ciccarone, University of California San Francisco

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Behavior

Abstract: Aim: National mortality data on prescription and illicit opioids, such as heroin and the fentanyls, is sobering. Illicit opioid overdose risk varies regionally, with higher levels in the Northeast, Midwest and Mid-Atlantic. Little is known however of the mechanisms of structural risk and risk-taking among the heroin-using population. Qualitative research is best used for exploration when many unknowns exist. It can develop an understanding of health risks from both the viewpoints of researchers and the population at risk, informing the effectiveness of interventions and generating hypotheses for further epidemiological enquiry. This study’s aim is to understand the experiences and beliefs of users of novel opioid combinations and to observe the attendant health risks. Methods: A team of researchers was dispatched to locations in the US where increases in overdose rates or changes in substances sold as ‘heroin’ were noted. Sites visited in this ‘hotspot study’ included Baltimore, MD, three cities in MA, Chicago, IL and Charleston, WV (2016-17). A targeted sample was recruited through clinics and syringe exchanges. Procedures included in-depth interviews, unstructured time with participants, observations/recordings of drug consumption and fieldnote composition. The data were analyzed thematically. Results: Themes emerging across the hotspot sites included: 1) individual and social devastation; 2) supply-driven changes in ‘heroin’; 3) extreme potency variations, compounded by fentanyl; 4) polarized desirability of fentanyl; 5) some degree of discernment; 6) heightened risk-taking by a new generation of users; 7) adaptive precautionary responses among some users. Conclusion: The evolving heroin and fentanyl co-epidemics are unprecedented in scope and are leading to seismic changes in the risk landscape for users in the US. Users face overdose risk from hard-to-predict fluctuations of street heroin potency and adulteration. Inadequate education and access to prevention programs places users at increased risk for overdose as well as viral and bacterial infections.

Financial Support: NIH/NIDA R01: DA037820

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ID: 689
Patterns of past 30 day concurrent use of drugs among varying age cohorts: Self-reported data from community members

Catherine Woodstock Striley, University of Florida

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Epidemiology

Abstract: AIM: Patterns of drug use, including prescription drugs, can provide estimates of drug exposure within a given area or population. Understanding patterns of exposure by age is important to health and public health practice. Here, we investigate patterns in current drug use among 9,046 adult Florida residents by age cohort. METHODS: Data was gathered from community members through HealthStreet, a Community Health Worker (CHW)-based engagement program of the University of Florida. CHWs assess community members for their health concerns and history, medication and drug use patterns. Community members are then provided with health referrals and health education, and opportunities to participate in health research. Participants who consented and were assessed from HealthStreet's opening in November 2011 until October of 2017 were included in this analysis. Participants were classified into four age groups: 18 to 34, 35 to 49, 50 to 64, and 65+ years of age. Rates of lifetime and past 30 day use (in percentages) were compared between groups. RESULTS: Out of 9,046 community members, 32% reported using one or more illicit drug or prescription pain or sedative in the past 30 days. Of those who used, 76.8% used only one; 19.2% used two; 3.4% used 3. The most common patterns were: marijuana use only among those 18 to 34 years old and 35 to 49 years old. Prescription pain pills were most prevalent among those 50 to 64 and 65+ years old. Prescription pain pill use and sedative use alone increased with age. Marijuana with pain pills or with stimulants decreased with age. CONCLUSION: Identifying patterns of drug use by age group is important to better understand exposure and to track consequences of common drug use patterns. In this community-based sample, patterns do change with age, with marijuana use decreasing but sedative and prescription pain pill exposure increasing.

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Company Affiliation: University of Florida

ID: 690
Comparing the acute cognitive effects of cannabis and alcohol: An exploratory analysis

Justin Matheson, Centre for Addiction and Mental Health

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Behavior

Abstract: Aim: To determine if differences exist in the acute effects of cannabis and alcohol on verbal memory, sustained attention, processing speed, and manual dexterity. Methods: Data came from two placebo-controlled, double-blind, randomized, parallel-design clinical trials assessing the effects of cannabis (Study 1) or alcohol (Study 2) on simulated driving and cognitive functioning. Participants were aged 19-25 and used cannabis 1-4 days/week (Study 1: 62 active, 31 placebo) or experienced a binge drinking episode in the past 6 months (Study 2: 20 active, 10 placebo). A battery of four cognitive/psychomotor tasks (HVLT-R for verbal memory, CPT for sustained attention, DSST for processing speed, grooved pegboard for manual dexterity) was administered before and 60 minutes after drug exposure (Study 1: 12.5% THC or placebo; Study 2: target BAC of 0.08% or placebo). Difference scores were calculated for each outcome (60 minute performance – baseline), and differences within each study (active vs. placebo) were analyzed using independent samples t-tests, followed by nested one-way ANOVA with a priori contrasts to compare alcohol and cannabis effects. Results: Cannabis (compared to placebo) significantly impaired performance in the HVLT-R alone (immediate recall, $p = 0.044$; delayed recall, $p = 0.036$; percent retained, $p = 0.001$). Alcohol (compared to placebo) impaired performance in all four tasks: HVLT-R (delayed recall, $p < 0.001$; percent retained, $p < 0.001$), DSST (correct trials, $p = 0.036$), CPT (hit rate, $p < 0.001$), and grooved pegboard (time to completion for dominant hand, $p = 0.014$; for non-dominant hand, $p = 0.048$). A priori contrasts indicated that alcohol had a stronger effect than cannabis on HVLT-R delayed recall ($p < 0.001$), HVLT-R percent retained ($p < 0.001$), DSST correct trials ($p = 0.033$), CPT hit rate ($p = 0.026$), and dominant hand time to completion of the grooved pegboard ($p = 0.032$). Conclusion: At the doses administered, cannabis seemed to have a specific effect on verbal memory, while alcohol had a larger and more general effect across the four cognitive/psychomotor domains assessed.

Financial Support: Canadian Institutes of Health Research and Ministry of Transportation of Ontario

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ID: 691
Behavioral activation and right thalamic activation during monetary and environmental reward anticipation among opiate users in detoxification

Stacey Daughters, University of North Carolina at Chapel Hill

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Mechanisms of Action

Abstract: Aims: Opiate users evidence reduced reward sensitivity, which is argued to impact engagement in naturally rewarding activities. The neural mechanisms associated with these deficits remain unexamined. Given the importance of engagement in substance-free activities and abstinence, the study aim was to identify the association between activity involvement and neural response to monetary and environmental reward. Methods: Opiate users with elevated depressive symptoms (n = 17) in detoxification, and matched controls (n = 17) completed environmental (Behavioral Incentive Delay) and monetary (Monetary Incentive Delay) reward tasks while undergoing a 7T fMRI scan. Functional impairment in activity involvement was assessed with the self report Behavioral Activation for Depression Scale (BADS). Neural response during reward anticipation in a priori ROIs implicated in reward processing (bilateral ventral striatum and thalamus, left culmen and medial frontal gyrus, right insula) were extracted during each task. Separate linear regression analyses regressed the BADS total score on the interaction of group and each ROI. Results: Results indicated a significant group by right thalamus interaction effect (B = 42.60, SE = 20.15, t(3,28)=2.12, p = 0.04) during environmental, but not monetary reward anticipation. Post-hoc analyses indicate this positive association was significant among opiate users (B = 54.03, SE = 16.54, t(14)=3.27, p B = 11.43, SE = 11.67, t(14)=0.98, p = 0.34). No additional interaction effects were observed. Conclusions: Right thalamic activity during environmental, but not monetary reward anticipation is associated with increased behavioral activation among opiate users. Although right thalamic activity may reflect engagement in arousal and attentional processes when viewing both monetary-based and naturally rewards, it may be a better index of behavioral activation behaviors in response to viewing naturally rewarding activities compared to money, which may act as a drug-related reward. Continued research on the neural mechanisms contributing to reward sensitivity and engagement in naturally rewarding activities may inform future targets for intervention.

Financial Support: None.

First Name: Stacey

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Contact Title: Assistant Professor

ID: 692
Cannabis use and changes in body weight studied prospectively: New estimates for the US

Omayma Alshaarawy, Michigan State University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Epidemiology

Abstract: Aims: Multiple experiments with relatively small sample sizes indicate cannabinoid effects on appetite. Cross-sectional associations in large epidemiological survey samples indicate lower weight among cannabis users in the United States (US). But might cannabis effects on weight gain, or on prevalence of obesity, be large enough to detect at the population level? In this epidemiological study, we aim to estimate cannabis' hypothesized effect on change in body mass index (BMI), prospectively. Methods: A nationally representative US study population sample for the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) included 33,212 participants (age 18+) with computerassisted personal interview data on cannabis use and body mass at Waves 1-2, three years apart. BMI was calculated as weight in Kg/height as meters squared. General linear modeling yields estimates for BMI change regressed on cannabis use status (non-users, initiates, quitters, persistent users), with covariates from a conceptual model for BMI determinants. Results: Persistent use and newly incident use are inversely predictive of BMI change, relative to weight gains seen among non-users (β = -0.3; 95% CI = -0.5, -0.1, and β = -0.4; 95% CI = -0.5, -0.3, respectively). Conclusions: Extending cross-sectional evidence on inverse associations that link cannabis use and obesity levels, this new prospective study evidence shows cannabis-associated lower weight gain. In the next research steps, more rigorous cannabis and BMI assays will be needed.

Financial Support: NCCIH K99AT009156(OA) NIDA K05DA015799 (JCA)

First Name: Omayma

Last Name: Alshaarawy

Degrees: MA MD Ph.D etc:: MBBS, Ph.D.

Company Affiliation: Michigan State University

ID: 693
Citalopram for controlling impulsivity in cocaine use disorder: Evidence from BOLD and DCM imaging

Andrew Snyder, Virginia Commonwealth University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Stimulants

Topic: Treatment

Abstract: Aims: Prior studies suggest that increased synaptic serotonin mitigates impulsivity and may reduce impulsivity in those diagnosed with cocaine use disorder (CocUD). We tested this hypothesis using blood-oxygenation level-dependent (BOLD) functional magnetic resonance imaging (fMRI) to assess the relationship between pretreatment brain activation and response to treatment with citalopram, as measured by the treatment effectiveness score (TES). Methods: SPM12 analyses were conducted on the BOLD fMRI data acquired from 13 CocUD subjects while they performed an event-related Go/NoGo task. In the first-level general linear model analysis, contrasts of parameter estimates were calculated for Easy NoGo relative to Go (E), Hard NoGo relative to Go (H), Hard relative to Easy NoGo (HmE), and Hard plus Easy NoGo relative to Go (HpE). In the SPM12 second-level analyses, we analyzed the regression of each NoGo contrast activation on TES. Results: Among the aforementioned contrasts, multiple statistically-significant clusters were found primarily in prefrontal cortex, striatal, and motor cortex regions (cluster-defining threshold = 0.001; FWE-corrected 2-tailed cluster $p < 0.05$). Specifically, the positive regression of H activation on TES revealed a 228 voxel cluster in portions of bilateral postcentral, bilateral precuneus, and bilateral paracentral regions, suggesting that increased visual processing and motor inhibition predicted treatment effectiveness. The negative regression of HmE activation on TES revealed a 106 voxel cluster in portions of the right inferior frontal gyrus pars triangularis, precentral gyrus, and rolandic and inferior operculum, suggesting that less activation of these regions with increasing task difficulty predicted treatment effectiveness. Conclusions: These preliminary results suggest that brain activation patterns on the Go/NoGo task can predict treatment response to citalopram as measured by TES. In CocUD, inferior frontal activation with greater task difficulty predicted worse treatment response to citalopram. In addition, prefrontal inhibition of motoric responses may be a predictor of good response to citalopram treatment.

Financial Support: NIDA Grant #U54-DA038999 (FGM/JLS)

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ID: 695
Examining gaps in the naloxone (Narcan) cascade of care

Karin Tobin, Johns Hopkins Bloomberg School of Public Health

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Behavior

Abstract: Aim: Naloxone reverses opiate induced overdose. Emerging research shows the positive impact of opioid overdose education and community naloxone distribution (OEND) programs in reducing opioid related overdose deaths. Despite these promising findings opiate overdose continues to be a major cause of mortality. The "cascade of care" has been a useful tool for identifying specific steps involved in achieving optimal health outcomes. The purpose of this study was to examine the Naloxone cascade. Methods: Data came from a cross-sectional survey of a sample of 353 individuals aged 18 and older who self-reported lifetime history of injection drug use. Five steps of the cascade were assessed: Ever heard about Narcan (yes/no); ever been trained to use Narcan (yes/no); been given a Narcan kit? (yes/no); how often they carried Narcan (never, rarely, sometimes, often, always)" and whether they had ever used Narcan (yes/no). Results: The sample was majority male (65%) and mean age was 46.5 years (SD=10.7). Two-thirds had 12th grade education or higher (60%) and 43% reported being homeless in the past 6 months. More than half of the sample reported use of crack (64%), heroin (74%) and injection (57%) in the past 6 months. Ninety percent ever witnessed an overdose and of these 59% were in the prior year. A majority had heard about naloxone (90%), received naloxone (69%) and/or been trained to use naloxone (60%). Over one-third of the sample reported never (37%) or rarely/sometimes carrying naloxone (38%), while 25% reported always carrying. One-third had ever used it (33%). Having witnessed an overdose in the prior 12 months was associated with often/always carrying naloxone (p=0.03). Conclusions: An important gap in the naloxone cascade is the proportion of people who carry the medication with them. Future research is needed to understand reasons for not always carrying naloxone.

Financial Support: NIDA R01DA040488

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ID: 696
Expression of DeltaFosB in taurine-cocaine treated rat brains

Kaliris Salas-Ramirez, CUNY School of Medicine

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Stimulants

Topic: Treatment

Abstract: Cocaine is a highly addictive stimulant drug with severe neurological and cardiovascular consequences that is currently used by 1.5 million people in the United States. Chronic cocaine usage stimulates production of transcription factor deltaFosB in regions of the brain that mediate addiction, particularly the nucleus accumbens. Accumulation of deltaFosB represents a molecular marker for addiction that increases sensitivity to compulsive drug-seeking behaviors. Taurine, an endogenous amino acid found in many diets, has neuroprotective capabilities against the behavioral effects of cocaine, however, no research exists on an association between taurine and deltaFosB expression in an addicted brain. Here, we assessed the effect of taurine and cocaine on neural expression of deltaFosB in the nucleus accumbens of female rats. We hypothesized that taurine will downregulate expression of deltaFosB. Twenty intact adult female rats were exposed to a series of taurine and cocaine treatments, followed by a 9-day cocaine-induced behavioral sensitization protocol. Animals were perfused and tissue was stored in cryoprotectant. We examined the expression of deltaFosB using immunocytochemical techniques. Microscopic analysis with Neurolucida software was utilized to trace the nucleus accumbens and determine the mean quantity of deltaFosB stained cells per area in each brain section within this neural structure. As determined by a one-way ANOVA, taurine tended to decrease deltaFosB in animals that were exposed to cocaine when compared to animals that were exposed to cocaine for 7 days and were behaviorally sensitized in the core of the nucleus accumbens. There were no significant differences in deltaFosB in the nucleus accumbens of animals treated with taurine, independent of cocaine treatment, and saline controls. These preliminary finding suggests that deltaFosB increases as result of repeated cocaine usage, and taurine may attenuate deltaFosB expression. This is the first study performed on taurine's ability to decrease deltaFosB and can serve to support its efficacy

Financial Support: 01R25DA030310 01R25DA035161

First Name: Kaliris

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Company Affiliation: CUNY School of Medicine

ID: 697
Race/ethnicity and sex differences in heroin use among adolescents in 3 US cities: Baltimore, MD, Washington, DC, & Jacksonville, FL (2015)

Abenaa Jones, Johns Hopkins Bloomberg School of Public Health

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Adolescent

Abstract: Aim: Although the national prevalence of adolescent heroin use is low (~2%), some US cities have elevated levels of use, including Baltimore, MD (8.3% in 2015), the District of Columbia (DC, 4.6%), and Jacksonville, FL (6.3%). To evaluate variation across subgroups, we examined sex and race/ethnicity differences in the lifetime prevalence of adolescent heroin use in three cities. Methods. Using local Youth Risk Behavior Survey (YRBS) data from each city, we provide the 2015 prevalence estimate (and 95% confidence intervals, not shown here) of lifetime heroin use among 9th-12th grade students by race/ethnicity, sex, and race/ethnicity by sex. Results: There were statistically significant differences in heroin use by race/ethnicity in DC (6.1%, 3.9% and 2.1% among Hispanic/Latino, Black, and White youth, respectively) and Jacksonville (8.3%, 6.4% and 3.6% among Hispanic/Latino, Black, and White youth, respectively). The Baltimore sample was predominately Black. Boys had significantly higher rates of use than girls in all three cities (Baltimore, 11% vs. 3.3%; DC, 6% vs. 2.9%; Jacksonville, 7.8% vs. 3.6%). There was a large male-female "gender gap" in lifetime heroin use among Black and Hispanic/Latino students. Among black students, boys were more likely to report heroin use (DC, 5.2 vs. 2.6%; Baltimore, 10% vs. 3.0%; Jacksonville, 9.1% vs. 3.8%). Similarly, Hispanic/Latino boys were more likely than girls to report use (DC, 10.8% vs. 4.6%; Jacksonville, 8.0% vs. 3.9%). There were no significant sex differences in use among White students in DC or Jacksonville. Discussion: In three US cities with high levels of adolescent heroin use – Baltimore, DC, and Jacksonville – we observed that the prevalence of heroin use was high (i.e., >5%) among Hispanic/Latino youth in DC and Jacksonville, and among Black youth in Baltimore and Jacksonville. The prevalence was particularly high among Black and Hispanic/Latino boys, e.g., 11% among Black males in Baltimore.

Financial Support: 4T32DA007292-24 (PI: Renee M. Johnson), K01DA031738-06 (PI: Renee M. Johnson).

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ID: 699
Marijuana use and attitudes in the context of recreational cannabis legalization in California: Comparison of 2016 and 2017 in the California Adult Tobacco Survey

Danielle Ramo, University of California San Francisco

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Policy

Abstract: Aim: Studies show that exposure to a policy debate, regardless of whether there is a policy change, can influence substance use and drug-related attitudes. This paper examines the impact of a successful 2016 California ballot proposition to permit recreational marijuana sales on adult attitudes toward, and use of, marijuana. Methods: Using the California Adult Tobacco Survey (CATS), we compared marijuana use and attitudes towards marijuana policy in California before (2016; N=2016) and after (2017; N=3065) a vote to legalize recreational marijuana. The CATS surveys California adult residents using a web-based panel in English and Spanish, with smokers and African-Americans oversampled. Results: Compared to Californians in 2016, respondents in 2017, after the proposition passed and before its implementation, were more likely to have seen marijuana billboard ads in the past year (16% vs. 25%) and to be exposed to marijuana smoke in the past two weeks (23% vs. 34%). They were more likely to believe that the law should prohibit cannabis use where tobacco use is not allowed (85.5% vs. 90.5%), more likely to agree that marijuana should not be sold in stores accessible to children (82% vs. 85%), and more likely to prefer that edible products have child resistant packaging (86.2% vs 92%; all p
Financial Support: California Tobacco Related Disease Research Program 25IR-0025

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Last Name: Ramo

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: University of California San Francisco

Contact Title: Assistant Professor of Psychiatry

ID: 700
E-cigarette based inhalation of nicotine increases locomotion in rats

Mehrak Javadi-Paydar, The Scripps Research Institute

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Nicotine/Tobacco

Topic: Sex Differences

Abstract: Background: Electronic nicotine delivery systems (ENDS; "e-cigarettes") are increasingly adopted by humans for the rapid delivery of nicotine bolus to the brain via inhalation. Preclinical models of ENDS are desired to fully explore the health risks, or benefits, of such devices as an alternative to smoked tobacco. Aim: To determine if the administration of nicotine via vapor inhalation produces locomotor stimulation in rats. Methods: Male and female Sprague-Dawley rats were exposed to vapor produced by a propylene glycol vehicle (PG) or nicotine (1-30 mg/mL in PG), or injected with nicotine (0.1-0.8 mg/kg, s.c.). Mecamylamine (2 mg/kg), a α2-α6 nicotinic cholinergic receptor antagonist, was administered 15 minutes prior to nicotine in additional studies. Body temperature and locomotor responses were evaluated post-inhalation using a radiotelemetry system. Results: Locomotor activity was increased dose-dependently in female rats for the first 60 min after nicotine inhalation (30 mg/ml for 15 minutes) and this effect was blocked by pretreatment with the nicotinic cholinergic receptor antagonist mecamylamine. Similar magnitude effects were observed after subcutaneous administration in female rats. Locomotor activity was increased in male rats after inhalation of nicotine vapor relative to vehicle inhalation if two 15 minute epochs were used. The body temperature was not changed following the nicotine inhalation or subcutaneous injection in either sex. Conclusion: This study provides initial validation of a novel e-cigarette based inhalation model of nicotine exposure in male and female rats, with a comparison with the subcutaneous route. Nicotine inhalation increased locomotor activity to a similar or greater extent than the subcutaneous route in male and female rats. Minor sex differences were observed but this may be related to lower baseline activity and a higher vehicle response in the males.

Financial Support: Funding support provided by USPHS grants AA007456 and DA041967

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Last Name: Javadi-Paydar

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Company Affiliation: The Scripps Research Institute

ID: 701
Evidence-based medication treatment among Medicaid-enrolled youth with opioid use disorder, 2014-2015

Scott Hadland, Boston University School of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Adolescent

Abstract: Aim: Opioid use disorder (OUD) commonly begins in adolescence and young adulthood. We determined the extent to which publicly insured adolescents and young adults (collectively, "youth") with OUD receive evidence-based medications buprenorphine, naltrexone, and methadone. Methods: Using the Truven MarketScan data, we analyzed inpatient, emergency department, outpatient, and pharmacy claims of 2,490,114 Medicaid-enrolled youth aged 13-22 from 11 states between January 2014 and December 2015. We identified youth who received an OUD diagnosis in ≥1 inpatient or emergency department claim or in ≥2 outpatient claims. We determined the percentage of youth dispensed buprenorphine, methadone, or naltrexone within 3 months of diagnosis and identified disparities according to sociodemographic characteristics and illness comorbidity using multivariable logistic regression. Results: Among 4,837 youth with OUD, 56.9% were female and 76.0% were non-Hispanic white. Median age at diagnosis was 20 years (interquartile range, 19-22). Overall, 23.5% (n=1,139) youth were dispensed medication within 3 months of diagnosis, among whom 82.1% received buprenorphine, 6.0% received methadone, and 11.9% received naltrexone. Adolescents < 1 8 years were more likely than young adults ≥18 to receive naltrexone, and less likely to receive buprenorphine or methadone (p < 0 .001). Overall, adolescents were less likely to receive any medication (age 13-15: adjusted odds ratio [AOR], 0.08; 95% confidence interval [CI], 0.03-0.22; age 16-17: AOR, 0.18; 95% CI, 0.12-0.26) compared to young adults, as were black youth compared to non-Hispanic white youth (AOR, 0.41; 95% CI, 0.28-0.58). Medication receipt was less likely among youth with comorbid alcohol use disorder (AOR, 0.50; 95% CI, 0.38-0.65) or another comorbid substance use disorder (AOR, 0.60; 95% CI, 0.52-0.70). Conclusion: In this first multi-state study of Medicaid-enrolled youth with OUD, fewer than 1 in 4 received evidence-based medication treatment. Efforts should be made to address treatment disparities for black youth, and to maximize treatment for youth with polysubstance use disorder.

Financial Support: Dr. Hadland was supported by a Thrasher Research Fund Early Career Award, and the Loan Repayment Program Award L40 DA042434 (NIH/NIDA).

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Degrees: MA MD Ph.D etc:: MD, MPH, MS

Company Affiliation: Boston University School of Medicine

ID: 702
Identification of neural circuits recruited during withdrawal from methamphetamines using whole brain imaging

Adam Kimbrough, The Scripps Research Institute

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Stimulants

Topic: Neurobiology

Abstract: AIM Identifying the neural circuits that are recruited during drug withdrawal is an important step in understanding the transition, maintenance and relapse to drug addiction. There is limited knowledge about the brain circuitry recruited during withdrawal from methamphetamine. Historically, it has been difficult imaging and quantifying large numbers of brain regions in an unbiased way. However, recently new techniques have been made available which allow for large-scale immunostaining and imaging. The goal of this study is to identify the neural circuitry that is recruited during methamphetamine use via iDISCO whole brain imaging and Fos immunostaining as a proxy for neural reactivity. METHODS C57BL/6J mice were surgically implanted with osmotic mini pumps filled with either saline (n=4) or methamphetamine (n=5; 4 mg/kg/day). Mice were then returned to their home cages with the mini pumps for one week. After one week mice had the mini pumps removed. Mice were transcardially perfused 12h into withdrawal and brains were collected for iDISCO brain clearing and Fos immunostaining. The brains were imaged using a light sheet microscope. Data was analyzed using the ClearMap pipeline to get Fos positive neuron counts for ~200 brain regions. RESULTS Significant differences between the two groups were found in a network of thalamic nuclei. Ongoing analysis are investigating the functional connectivity with the rest of the brain. CONCLUSION These results identify a potential new thalamic circuit that may contribute to methamphetamine withdrawal and demonstrate the feasibility and value of unbiased whole brain imaging to identify the neural network of the different phases of the addiction process.

Financial Support: T32 AA007456 to AK

First Name: Adam

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Degrees: MA MD Ph.D etc:: Ph.D

Company Affiliation: The Scripps Research Institute

ID: 703
County-level overdose deaths and prescription opioid dispensing patterns in Ohio

Erin Winstanley, West Virginia University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: Aims: The purpose of this study was to assess whether known reductions in the quantity of opioids dispensed in Ohio, after the implementation of a Prescription Drug Monitoring Program (PDMP), were associated with county-level drug overdose death rates. PDMPs have been associated with reductions in the quantity of opioids dispensed at the state-level; however, there is mixed evidence regarding whether there have been parallel decreases in overdose deaths. We hypothesized that there are county-level and time dependent differences in the association between overdose deaths and the quantity of opioids dispensed. Methods: County-level overdose deaths are publically available on the Ohio Department of Health's website and the quantity of prescription opioids dispensed was taken from Ohio's PDMP. Exploratory spatial data analysis approaches were applied in ArcMap and GeoDa software packages using 2007, 2012, and 2016 rates of overdoses and prescription opioids dispensed per 1,000 persons by county. Results: Rate estimation indicated increasing spatial trends in both overdose and opioids dispensed by county in 2012, but decreasing activity from 2012 to 2016. Bivariable Local Moran's I and subsequent bivariable LISA maps indicated significant ($p=0.05$) high and low clusters of overdose and prescription opioid rates by county. The number of spatial outliers increases during later time points while clusters of high activity decrease. Visualization of Local R2 values from exploratory regression analysis indicated a decreasing trend over time in the amount of variation in county level overdose explained by the quantity of opioids dispensed. Conclusion: Together these exploratory findings suggest a spatial-temporal decrease in the association between rates of overdose deaths and prescription opioids dispensed in Ohio. More research is warranted to incorporate potential confounders, as well as to identify other factors that may explain county-level variations in overdose death rates.

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First Name: Erin

Last Name: Winstanley

Degrees: MA MD Ph.D etc:: Ph.D.

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Contact Title: Asst/ Professor

ID: 704
Reasons for assisting with injection initiation: Results from a large survey of people who inject drugs in Los Angeles and San Francisco, California, 2016/17.

Ricky Bluthenthal, Keck School of Medicine University of Southern California

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Epidemiology

Abstract: Injection drug initiation usually requires assistance by someone who already injects drugs. To tailor interventions that prevent people from starting to inject drugs, it is imperative to understand why people who inject drugs (PWID) assist with initiation. Objective: To determine reasons for PWID assisting with injection initiation and identify factors such as demographic (e.g., race, age, sexual orientation), economic (e.g., income), drug scene involvement (e.g., providing guidance or venue for drug purchase or use), and drugs used, associated with these reasons. Methods: Information on initiating someone into drug injection and reasons for doing so were collected from 972 PWID in Los Angeles and San Francisco, CA, 2016/17. Multivariate logistic regression models were used to examine factors associated with reasons for initiating others. Results: Ever initiating someone into injection was reported by 41% of PWID (or 404/972). Reasons for initiating were: (1) to prevent injury (66%), (2) good at injecting others (65%), (3) to stop being bothered (41%), (4) in exchange for drugs (40%), and (5) in exchange for money (27%). The table below presents factors significantly associated with reasons for providing injection initiation assistance. Reason Demographics Economic Drug Scene Drugs Used Injury prevention Female Stop being bothered Paid sex Recycling income Sold syringes Good at it Guide to injection venue For Money Black Gay, lesbian, bi Operates shooting gallery Non-injection methadone use For Drugs Operates shooting gallery Non-injection methadone use Conclusion: Diverse factors were associated with injection initiation assistance. Drug scene involvement was most common. Non-injection use of methadone may be an indicator of contact with injection-naïve opioid users. Interventions focused on drug scene factors like safer consumption rooms and injection prevention counseling for patients of opioid substitution treatment seem warranted.

Financial Support: NIDA grant number R01DA038965

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Degrees: MA MD Ph.D etc:: Ph.D.

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ID: 705
Substance use and peer use from adolescence to adulthood in the MTA

Traci Kennedy, University of Pittsburgh

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Behavior

Abstract: AIM Peer substance use strongly influences adolescents' own use, especially those with ADHD. The extent to which peer influences continue into adulthood among individuals with childhood ADHD is unknown. Using the longitudinal follow-up of the children in the Multimodal Treatment of ADHD study (MTA), this study tests two hypotheses: (1) the association between peer substance use and one's own use (heavy drinking and marijuana use) is stronger in adolescence than adulthood; (2) associations are stronger among individuals with ADHD histories. METHODS The MTA includes 579 children diagnosed with DSM-IV ADHD, Combined subtype at age 7-9.9, and 258 Local Normative Comparison Group (LNCG) children without ADHD. For this study, participants were assessed up to 7 times from age 14 to Mage 25. Substance use (binge drinking frequency and marijuana use frequency) was self-reported on the Substance Use Questionnaire, and perceived number of substance-using peers was reported by participants (1=none-6=all). RESULTS Bivariate piecewise multilevel models indicated significant growth in peer use, heavy drinking, and marijuana use across adolescence (age 14-21; p
Financial Support: DA-8-5553, MH12010, MH050467, DA039881

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Last Name: Kennedy

Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: University of Pittsburgh

ID: 706
Opioid and benzodiazepine co-use among women associated with binge drinking

Jennifer Lorvick, RTI International

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Behavior

Abstract: AIM: This study examines the use of opioids and BZD in a sample of women who use illicit drugs, and compares women who used opioids but no BZD to women who used opioids and BZD. In the United States, there was a five-fold increase in fatalities involving the presence of both opioids and benzodiazepine (BZD) between 2002 and 2015. Use of this drug combination is significantly more common among women than men. METHODS: Community-based, cross-sectional survey of women who use heroin, cocaine or methamphetamine (N=631) in Oakland, CA from 2012-2014. Bivariate analyses were conducted to compare women who used opioids but not BZD and women who used both substances in past 30 days. RESULTS: In the past 30 days, 343 (54%) of participants used opioids. Among these, 106 (31%) also used BZD. Compared to women who used opioids but not BZD, women who used both substances were more likely to report binge drinking (62% vs. 48%, p=.015). There were no significant differences in use of crack cocaine, methamphetamine or marijuana. CONCLUSIONS: The high prevalence of binge drinking among women who used both opioids and BZD is cause for concern because alcohol and BZD both increase overdose risk. Detailed inquiry regarding the timing of multiple substance use (concurrency) is needed to better understand overdose risk and to inform potential prevention strategies.

Financial Support: NIMHD grant #R01MD007679

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Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: RTI International

ID: 707
Naloxone training and distribution among users does not increase risky opioid use

Karen Cropsey, University of Alabama

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Policy

Abstract: AIM: Opioid overdoses are the leading cause of accidental death in the US with almost 100 overdose deaths daily. Naloxone is a fast-acting and potent opioid antagonist that has been used for decades in the Emergency Room (ER) setting to reverse opioid overdoses. Naloxone training and distribution to non-medical persons has been one public health strategy to reduce overdose deaths. Concerns have been expressed about the potential unintended consequences of naloxone training, including increased risky use of opioids, although few studies have actively followed individuals who received a naloxone kit to determine outcomes other than reversal rates. METHODS: We distributed 298 kits to those at high risk for opioid overdose recruited through various community locations (e.g., drug treatment facilities, inpatient hospital setting, and criminal justice locations). Participants were trained in dyads (either friend/family member who may or may not be a fellow user) to recognize signs of opioid overdose, administer naloxone, and seek medical treatment. Follow-ups occurred up to 6-months post naloxone distribution. RESULTS: 32 participants reported using their naloxone kit (10.2%) with a reported 100% successful reversal rate; two participants died without using their kit. Most reversals occurred on third-party individuals (73.3%), while 23.3% were used on the friend or family member trained in the dyad, and 3.3% were administered to the user. 60% called 911, 26.7% went to the ER, and 36.7% entered substance abuse treatment following administration of naloxone. CONCLUSION: To our knowledge, this is one of the first studies to determine outcomes other than reversal rates among participants who received naloxone training and kits. Naloxone training and distribution does not appear to increase risky opioid use as evidenced by the low rate of naloxone use as well as the use on a third-party user. Naloxone reversals may serve as an important motivator for treatment.

Financial Support: This project was conducted through UAB crowdfunding mechanism and over 100 donations by individual donors

First Name: Karen

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Degrees: MA MD Ph.D etc:: Psy.D.

Company Affiliation: University of Alabama

Contact Title: Associate Professor

ID: 708
Norbuprenorphine, an active metabolite of buprenorphine, induces opioid dependence in a rat model of neonatal abstinence syndrome

Lisa Brents, University of Arkansas for Medical Sciences

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Opiates/Opioids

Topic: Perinatal

Abstract: BACKGROUND: Buprenorphine is the first-line treatment for opioid use disorder during pregnancy, but can induce opioid dependence in the fetus, leading to neonatal abstinence syndrome (NAS). NAS severity is not correlated with maternal dose, suggesting that inter-individual variance in buprenorphine pharmacokinetics may influence risk and severity of NAS. AIM: Determine whether norbuprenorphine, the major metabolite of buprenorphine, can cause or contribute to NAS. Using a rat model of NAS, we tested the hypothesis that fetal exposure to norbuprenorphine induces fetal opioid dependence as reflected by neonatal withdrawal signs. METHODS: Pregnant Long-Evans rats were implanted with 14-day osmotic minipumps containing vehicle, morphine (positive control), or norbuprenorphine (0.3-10 mg/kg/day) on gestation day (GD) 9. Within 12 hours of delivery, pups were tested for spontaneous or precipitated opioid withdrawal by injecting them with saline (10 ml/kg, i.p.) or naltrexone (1 or 10 mg/kg, i.p), respectively, and observing them for well-validated neonatal withdrawal signs. Fetal brains were harvested on GD 20 from dams treated with norbuprenorphine (1 or 3 mg/kg/day; n=3); norbuprenorphine was quantified in these tissues using LC-MS-MS. Behavioral data were analyzed using a two-way ANOVA (maternal dose and naltrexone dose; α=0.95; n=4-7). Fetal brain concentrations and neonatal withdrawal severity following 1 and 3 mg/kg/day norbuprenorphine administration were correlated using linear regression. RESULTS: As hypothesized, maternal norbuprenorphine treatment increased global withdrawal signs in a dose-dependent manner. Administration of naltrexone increased withdrawal signs in norbuprenorphine-, but not vehicle-, exposed pups. Spontaneous and precipitated neonatal withdrawal signs correlated with fetal brain concentrations of norbuprenorphine (m=1.221±0.3057 and 2.628±0.4899, respectively; $p < 0.002$, n = 3-7). CONCLUSION: Norbuprenorphine can induce NAS in the absence of buprenorphine, suggesting that buprenorphine pharmacokinetic properties that increase fetal norbuprenorphine exposure may intensify NAS severity.

Financial Support: Supported by the Arkansas Biosciences Institute Tobacco Settlement Funds (LKB) and the UAMS Child Health Initiative Award (LKB).

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ID: 709
α-PVP alters the reinforcing value of activity wheel access in male wistar rats

Eric Harvey, The Scripps Research Institute

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Stimulants

Topic: Behavior

Abstract: AIM: α-Pyrrolidinovalerophenone (α-PVP) is a member of the synthetic cathinone family of psychostimulants often referred to colloquially as “bath salts”. It is a second generation pyrrolidinophenone and has a structure and mechanism of action closely related to that of the first-generation compound 3,4-methylenedioxypyrovalerone (MDPV). Previous studies have found that access to non-drug reinforcers can alter the reinforcing value of drugs during intravenous self-administration (IVSA) in rodents. The present study aimed to further elucidate this phenomenon by utilizing an IVSA paradigm with α-PVP in male rats with differential access to activity wheels. METHODS: Male Wistar rats (n = 11) were trained to self-administer 0.05 mg/kg α-PVP per infusion under a fixed-ratio 1 (FR1) schedule of reinforcement during 60-minute daily sessions. Throughout the acquisition phase (sessions 1-21) animals were given access to either Unlocked (n=6) or Locked (N=5) in-chamber activity wheels. In the second phase (sessions 22-28), the wheel conditions were switched for each group. RESULTS: α-PVP infusions were approximately equal for both the Unlocked and Locked Wheel groups during acquisition, and remained so when the wheel conditions were switched. Wheel activity in the initially Locked group failed to reach levels seen in the initially Unlocked group after the switch in wheel access. Interestingly, the subjects in the current study did not show signs of a binge-like initial acquisition session, as was observed in previous studies with male rats self-administering MDPV and female Wistar rats self-administering α-PVP. CONCLUSION: Results indicate that α-PVP IVSA alters the reinforcing value of running wheel access as demonstrated in the Unlocked group when given wheel access after the initial acquisition phase. This may serve as a model for better understanding how drug use can attenuate the value of non-drug reinforcement.

Financial Support: Funded by the United States Public Health Service National Institutes of Health (R01DA042211).

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ID: 710
Adjusting for sampling bias in cross-sectional surveys

Olga Vselvolozhskaya, University of Kentucky

Abstract Category: Theoretical/Commentary

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Epidemiology

Abstract: AIM In drug abuse epidemiology a common design is to sample a population cross-sectionally and then retrospectively assess histories of drug-related exposures and experiences over a specified time period. Certain threats to validity of cross-section estimates must be carefully considered. A subject needs to survive and be available at assessment time. Short survival times imply some chance of truncation. Addiction may not be developed at assessment, leading to censoring. Standard methods do not account for these features, resulting in biased inference. METHODS We introduce a new statistical framework for evaluating the extent of such bias, starting from three stochastic components: (1) random, subject-specific onset of drug use; (2) time G from exposure to addiction; (3) probability of subject unavailability for assessment as a random function of duration of drug use and addiction. In our model, the times of the first exposure, T, are anchored at zero, which leads to a stochastically equivalent representation, where subjects are assessed at random times elapsed since T=0. Every realization of the random T, e.g., T=t creates two sets of addiction times, where, conditionally on T=t, G's are either greater or smaller than t. However, considering T across all possible values, dependency is introduced between the censoring (modeled via T) and the addiction times, represented by the two sets. In this work, we derive asymptotic distributions that characterize behavior of these sets of times to addiction. RESULTS The basic parametric models allow theoretical evaluation of the bias due to censoring and truncation and set up a general framework that can be explored via computational approaches. We illustrate our method by estimating risks of dependence for cocaine, marijuana, and alcohol based on the National Survey of Drug Use and Health data.

Financial Support: JCA: K05DA015799

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ID: 711
A mutoscope view of heroin incidence from mid-teens to mid-thirties

Prashanti Boinapally, Michigan State University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: Aim: To estimate age-specific and year-specific incidence of heroin use in the United States (US), 2002-13, using the epidemiologic mutoscope approach for study of newly incident heroin users (NIHU), cohort-by-cohort assessed year-by-year. Published estimates are coarse – e.g., 12-17, 18-25, and 26+ years. Methods: Study population samples for US National Surveys on Drug Use and Health, 2002-13, included >700,000 non-institutionalized civilians 14-to-34-years-old. After multi-stage sampling and recruitment, computer-assisted self-interviews identified 887 newly incident heroin users (NIHU). Consistent with the epidemiologic mutoscope approach, heroin incidence was estimated for 14-to-17-year-olds of 2002-5, who turned 18-to-21-years-old in 2006-9, and then 22-to-25 in 2010-13. Corresponding heroin estimates also are derived for other cohorts across these time intervals, with meta-analysis for summary estimates. Results: Meta-analysis shows NIHU occurrence rates at roughly 10-13 NIHU per 10K for 14-to-17-year-olds, 20-25 NIHU/10K for 18-to-21-year-olds, 13-18/10K for 22-to-25-year-olds, under 10/10K at age 26-29, and under 5 NIHU/10K for 30-to-34-year-olds. Illustrating the mutoscope's cohort-wise view, among 14-to-17-year-olds of 2002-5, the estimated rate is roughly 14 NIHU per 10K, which had doubled to 25-30 NIHU/10K as that cohort had become 18-21 years old in 2006-9, and with no appreciable change in incidence rate as the cohort became 22-to-25-year-olds in 2010-13. However, cohort-wise estimates for 2010-13 suggest there now is no substantial drop in NIHU occurrence as the more recent cohorts passed through their late-twenties and early-thirties. Conclusions: We will start by acknowledging limitations (e.g., survey methods changes). Nonetheless, these new incidence estimates suggest that for the more recently born US cohorts the 'period of risk' for vulnerability to start heroin use might have shifted to the right during the US opioids epidemic.

Financial Support: Funding Source: K05DA015799, T32DA021129, NIDA VPT32, and Michigan State University.

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ID: 712
Differential effects of crack-cocaine and crack-cocaine + cannabis on neurocognitive functioning

Hercilio Oliveira, Universidade de Sao Paulo

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Stimulants

Topic: Other

Abstract: AIM: Both cannabis and crack-cocaine use have been associated with a set of negative consequences including neurocognitive executive impairments. Even though recent studies have suggested a therapeutic effect of cannabis use in crack-cocaine dependence characterized by reduction in anxiety and craving, data on possible negative side effects of this association are lacking. We investigated differential neuropsychological deficits among crack-cocaine dependents who use cannabis (CC), crack-cocaine only users (CR), and controls. METHODS: 74 adult subjects were evaluated (18 CC, 24 CR, and 32 controls). Participants were evaluated after two weeks of supervised detoxification in two inpatient treatment programs. All subjects were evaluated using an extensive battery of neuropsychological tasks including the Trail Making Test (TMT), the Stroop Color-Word Test (SCWT), the Digit Span Forward (DF) and Backward (DB) tasks, the Wisconsin Card Sorting Test (WCST), the Iowa Gambling Task (IGT), the Frontal Assessment Battery (FAB), the Rey-Osterrieth Complex Figure test (ROCFT), the Controlled Oral Word Association Test (COWAT), and the Wechsler Adult Intelligence Scale (WAIS). Differences in performance on neuropsychological tests among the three groups were assessed with Analysis of Covariance (ANCOVA) controlling for age, intelligence, and years of education. RESULTS: Crack-cocaine users who use cannabis performed worse than controls in conceptualization (p
Financial Support: Funding for this study was provided by National Council for Scientific and Technological Development - CNPq (402721/2010-1) and The State of São Paulo Research Foundation — Brazil (FAPESP) Grants 2000/12081-5, 2010/01272-6, 2011/19179-5, 2010/15604-0. The FAPESP and CNPq had no further role in study design; in the collection, analysis and interpretation of data; in the writing of the report; or in the decision to submit the paper for publication.

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ID: 713
Craving mediates behavioral economic risk for opioid use during prescription opioid addiction treatment

Matthew Worley, University of California San Diego

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Mechanisms of Action

Abstract: AIM Behavioral economic research has established several phenotypic mechanisms of substance use disorders collectively referred to as “reinforcer pathology”. Prescription opioid addiction is a major public health problem. In adults receiving treatment for prescription opioid addiction, this study examined whether a real-world index of reinforcer pathology, drug spending, predicts opioid use via the mediator of greater craving. METHODS This secondary analysis sample included 346 adult humans with prescription opioid addiction in a multi-site clinical trial of buprenorphine-naloxone maintenance and enhanced or standard counseling. Measures included the baseline percentage of income spent on drugs, weekly craving, and weekly self-reported opioid use. Multilevel mediation analysis tested the relations between percentage drug spending, craving, and future (next-week) opioid use. RESULTS Percentage drug spending ranged from 0% to 2000%, with a mean of 141%. Greater percentage drug spending predicted greater weekly craving ($b = .15$, $p < .01$), which in turn predicted greater next-week opioid use ($b = .15$, $p < .001$). The effects of percentage drug spending on future opioid use were significantly mediated by craving ($ab = .02$, 95% CI [.015, .028], $p < .05$). CONCLUSION As reflected by allocation of financial resources towards opioid use, prescription opioid users show considerable individual differences in drug reinforcement value. Users who spent a greater percentage of income on opioids pre-treatment had poorer outcomes during 12 weeks of opioid maintenance therapy and counseling, at least partially due to their greater craving. Future studies should examine specific neurobehavioral or neurobiological underpinnings of drug reinforcement value to create appropriate therapies that improve treatment outcomes.

Financial Support: NIDA K23DA039348

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ID: 714
Clinical research applications of a statewide health information exchange (HIE)

Jan Gryczynski, Friends Research Institute

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Technology Issues

Abstract: Aims: To examine early experiences using Maryland's statewide HIE, the Chesapeake Regional Information System for our Patients (CRISP), to track hospital and emergency health service utilization in a research study with hospital patients with comorbid substance use disorders. Methods: Participants were medical/surgical hospital patients with comorbid alcohol, opioid, or cocaine use disorders recruited into a clinical trial of a patient navigation intervention. This analysis examined hospital service utilization through 12 months of follow-up for the first 50 participants. We compared CRISP records with self-report timeline follow-back (using calendars, prompts, and well-trained interviewers) for obtaining information on hospitalizations and emergency department visits. Results: In the 12-months since study enrollment, this high-utilization and fragmented-care sample had a total of 112 unique inpatient hospitalization episodes (620 aggregate person-days in hospital) and 206 emergency department visits, per CRISP records. Relying exclusively on self-report would accurately identify only 25.9% of inpatient hospitalizations and 5.8% of emergency department visits. For hospitalizations, 55.4% of encounters documented in CRISP were undisclosed during interview; 19% would not have been ascertained due to loss-to-follow-up during the observation period. For emergency department utilization, 47.1% of encounters documented in CRISP were undisclosed during interview; and 47.1% would have not have been ascertained due to loss-to-follow-up. Conclusion: Self-report methods – even using well-established techniques to enhance recall and elicit accurate information – dramatically underestimate hospitalizations and emergency department visits, due to both loss-to-follow-up and participant non-disclosure. Given its breadth, completeness, and efficiency, use of statewide HIE data could dramatically improve the reliability of health services research (including economic analyses) involving hospital and emergency department utilization, as well as adverse event monitoring in clinical trials.

Financial Support: NIDA R01DA037942

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ID: 715
Prescription drug monitoring programs and opioid overdoses: Exploring sources of heterogeneity

Alvaro Castillo-Carniglia, University of California Davis

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: Aim: Prescription drug monitoring programs (PDMPs) are designed to reduce harms from prescription opioids (PO); however, little is known about their effectiveness across different populations and their unintended consequences. We investigated variation in the effects of implementing online electronic PDMPs on the rate of hospital discharges related to PO and heroin overdoses among areas with different socioeconomic levels, and different rates of inpatient admissions related to chronic pain. Methods: We used county-level data from the State Inpatient Databases of the Healthcare Cost and Utilization Project for 14 US states for 2002–2014, resulting in 11,323 space-time units. Results were estimated with spatiotemporal Bayesian Poisson models with conditional autoregressive random effects. Results: Between 2004-2009, the implementation of electronic PDMPs was associated with an increase in the rates of PO overdose, with a maximum increase of 8% in 2006 (95% credible interval [95%CI]: 5%, 11%). Implementing such programs in the following years was associated with up to a 28% decrease in these rates (95%CI: -32%, -25%). For heroin, the risk function had a J-shape across the study period, with the lowest rate ratio (RR) in 2005 (RR = -8%; 95%CI: -15%, -1%) and the highest in 2014 (RR = 99%; 95%CI: 70%, 132%). Counties with lower rates of inpatient admissions related to chronic pain showed the largest increase in heroin overdoses following PDMP implementation. No differences were observed across socioeconomic levels. Conclusions: More recent implementation of electronic PDMPs was associated with a reduction in PO related hospital discharges, but with an increase in heroin overdoses, in particular in counties with lower rates of inpatient admissions related to chronic pain. These results highlight the need for PDMPs to be implemented alongside complementary policies and programs that address illicit drug-related deaths in order to shift the course of the opioid overdose epidemic.

Financial Support: This work was supported by the National Institute on Drug Abuse, grant R01DA039962 (Cerdá)

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ID: 716
Opioid and non-opioid analgesic therapy after surgery

Karsten Bartels, University of Colorado

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: Aim Overprescribing of opioid pain medications for patients to be used at home after a surgical procedure is common. We seek to ascertain important patient and procedural characteristics that are associated with rates (high vs. low) of self-reported utilization of opioids and non-opioids at home, 1-4 weeks after discharge following surgery. Methods We developed a survey consisting of questions from NIH PROMIS tools for pain intensity and pain interference and additional queries on postoperative opioid and non-opioid analgesic use. Adult patients who undergo gastrointestinal surgery complete the survey weekly during the first month after hospital discharge. Data collection is ongoing and preliminary results are thus descriptive. Upon completion (early 2018), characteristics (e.g. type of gastrointestinal surgical procedure, in-hospital analgesic use) will be evaluated for associations with post-discharge opioid use and non-opioid use with regression procedures. Results Of the 222 enrolled patients, 62 % are women. Current response rates for weeks 1-4 are: 181/222 (82%), 174/218 (80%), 166/210 (79%), 167/209 (80%). Results are reported in sequence by week after discharge. Number of opioid pain pills taken in weeks 1-4 (mean, [SD]): 14 [16], 6 [13], 3 [9], 2 [8]; at week 4, number of pills remaining was 23 [28]. Patients reporting not taking any opioid pills: 48 (27%), 93 (53%), 110 (66%), and 125 (75%). Patients using non-opioids per week: Acetaminophen: 86 (48%), 71 (41%), 60 (36%), 50 (30%). NSAIDs: 52 (29%), 41 (24%), 35 (21%), 25 (15%). Conclusions Opioid over prescription occurs frequently after gastrointestinal surgery. Opioid sparing analgesia using over-the-counter non-opioid medications occurs in less than half of cases following discharge. Future research should assess the effects of maximizing non-opioid analgesic therapy on short-term and long-term opioid use after surgery.

Financial Support: K23DA040923

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ID: 717
The role of sleep disruption in pain-related craving in adults with chronic pain and opioid misuse

R. Kathryn McHugh, McLean Hospital

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Behavior

Abstract: Aim: Sleep disruption is highly prevalent among those with chronic pain and is associated with increased reactivity to stressors. However, the impact of sleep disruption on craving in response to stress is unknown. The present study aims to extend prior research by testing the association between sleep disruption and pain-induced craving among those with chronic pain who were prescribed opioids. Methods: A sample of 51 participants (24 women; mean age = 54.6 years) who were prescribed opioid analgesics for chronic neck or back pain was recruited from a pain management clinic of a large, urban hospital. Participants completed a variety of self-report measures and a series of laboratory pain inductions. A linear regression analysis was used to test whether sleep disruption was associated with greater craving in response to pain induction in adults with chronic pain, both with (n = 31) and without (n = 20) opioid misuse. Results: Results indicated that greater sleep disruption was associated with greater opioid craving in response to pain induction, controlling for sociodemographic variables, pain severity, and negative affect. This result was qualified by a significant interaction between opioid misuse and sleep disruption, in which the association between sleep disruption and craving was stronger among those with more severe medication misuse. Conclusion: Among those with chronic pain, sleep disruption was associated with greater pain-related craving. This effect was driven by those who misused their medications, for whom the association between sleep disruption and craving was robust. This finding is consistent with negative reinforcement models of substance misuse, in which opioids are used to relieve distress, even despite negative consequences. Sleep disruption may be an important marker of risk for opioid misuse among those with chronic pain. Adequate treatment of sleep disruption may be a promising target for mitigating opioid craving in this population.

Financial Support: DA034102

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ID: 718
Current use of alcohol and marijuana among people with anxiety, depression, both or neither

Ayodeji Otufowora, University of Florida, College of Public Health and Health Professions

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Dependence

Abstract: Aims: To examine the association between past 30-day alcohol and marijuana use, and lifetime anxiety, depression or both and to investigate whether people with these disorders are more likely to use alcohol, marijuana or both than people without these health conditions. Methods: The Community Health Worker (CHW) model was used to gather data through a health intake interview. A total of 9294 participants were interviewed. The interview included questions about demographics, self-reported anxiety, depression, and past 30-day alcohol, marijuana and other illicit drug use. The outcome was categorized into four groups: current alcohol use alone, current marijuana use alone, both or neither. Results: Among the participants, 11.3% reported having anxiety only, 6.9% reported having depression only, 16.8% reported having both, and 65.0% reported having neither. Multinomial logistic regression indicated that participants with anxiety only were 1.7 times (95% CI 1.33-2.12) more likely to use marijuana only and 1.7 times (95% CI 1.34-2.23) more likely to use both alcohol and marijuana compared to those without such mental conditions. Participants with depression only were 1.8 times (95% CI 1.38-2.42) more likely to use marijuana alone and 1.9 times (95% CI 1.42-2.61) more likely to use both marijuana and alcohol compared to those without such mental conditions. Participants with both anxiety and depression were almost twice as likely to use marijuana alone and both marijuana and alcohol compared to those without such mental conditions. Conclusion: People with lifetime anxiety, depression or both are to varying degrees more likely to currently use marijuana or alcohol or both than not use either drug. Hence, healthcare providers will be better equipped to counsel patients with these disorders against drugs that they are more prone to abuse and reinforce the benefits of abstaining from drugs they are less likely to misuse.

Financial Support: University of Florida, Department of Epidemiology Deans Scholarship. No conflict of interest.

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ID: 719
Acceptability of mindfulness-based relapse prevention for ethnically diverse women

Tara Bautista, Arizona State University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Treatment

Abstract: Background. It is well-known that intervention acceptability influences adherence, intervention retention, and outcomes. Despite this consensus, a lack of empirical studies that investigate best practices for measuring acceptability remains an obstacle. This is a particularly challenging obstacle for newer interventions such as Mindfulness-Based Relapse Prevention (MBRP). Aims. The aims for the present study are to 1) assess initial and late acceptability, 2) assess changes in acceptability from initial delivery to later in the intervention, and 3) assess racial/ethnic differences in acceptability. Methods. The study used a phase II parallel-group randomized clinical trial (2016-2019), the present study includes preliminary data from 73 women from the MBRP-W condition. Acceptability was measured using four surveys: 1) satisfaction, 2) formal practice, 3) informal practice, and 4) applied mindfulness. Results. For the overall sample, satisfaction scores increased from session 2(M=4.15,SD=.56) to session 11(M=4.45,SD=.47) t(35)=-3.71,p=.001. Formal practice scores increased from session 3(M=2.07,SD=1.12) to session 12(M=2.78,SD=1.24) t(36)=- 4.68,p
Financial Support: National Institute on Drug Abuse and the National Institute on Alcohol Abuse and Alcoholism (5R01DA038648) National Institute on Drug Abuse (5R25DA026401).

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ID: 720
Effectiveness of combination pharmaco-behavioral therapy for smoking cessation in people who heavily drink and smoke

Daniel Schatz, New York University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Treatment

Abstract: INTRODUCTION People who heavily drink and smoke (HDS) have lower rates of smoking cessation compared to non-drinking counterparts. HDS lack effective interventions for smoking cessation. This study tests the hypothesis that naltrexone, nicotine replacement, medical management, and quit line referral in HDS will result in reductions in cigarettes per day and Fagerström's Test for Nicotine Dependence (FTND). METHODS This six-month single-arm prospective trial added nicotine replacement, quit line referral and medical management to an ongoing ExtendedRelease vs. Oral Naltrexone for Alcohol Dependence (X:ON) randomized trial. Inclusion criteria included moderate to severe alcohol use disorder and daily/near daily cigarette use. Exclusion criteria included smoking cessation pharmacotherapy or non-cigarette tobacco use in the past two weeks. Patients enrolled in X:ON three to six months before study initiation were historical norms while those after were included in the intervention arm. Patients provided three months of therapy. A paired t-test will be used for primary and secondary outcomes. RESULTS (done recruiting, results in process) Of 79 participants screened from X:ON, 28 were included. The historical norms (n=13, age 49.4, 62% male, 85% African American, 15% Caucasian) smoked 8.6 cigs/day (SD 4.35) at initiation and 8.9 cigs/day (SD 5.73) at six months. The intervention group (n=15, age 49, 87% male, 53% African American, 40% Caucasian) smoked 10.5 cigs/day (SD 6.87) at initiation and 7.5 cigs/day (SD 6.11) at six months. The FTND decreased from 4.0 (SD 2.29) at initiation to 2.9 (SD 2.67) at six months in the intervention group. Six of 14 (42.9%) had uptake of nicotine replacement and smoked 10.7 cigs/day at initiation and 5.7 cigs/day at six months. CONCLUSION The intervention group had non-significant reductions in cigs/day and FTND. Reductions in cigs/day were larger in the subcohort with nicotine replacement uptake. This preliminary data suggests combined alcohol-smoking pharmacotherapy interventions are feasible and possibly effective.

Financial Support: None

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ID: 721
Substance Use and Mental Health Profiles of Judicially-Involved Commercially Sexually Exploited Youth

Kayleen Ports, University of California Los Angeles

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Adolescent

Abstract: Aim: To describe the substance use profiles of commercially sexually exploited youth (CSEY) and explore associations among substance use, mental health, and child maltreatment among girls referred to a juvenile specialty court. Methods: We conducted an exhaustive court file review of the 364 participants in Los Angeles County's STAR Court, a juvenile delinquency specialty court for CSEY. The study period spanned 2012-2016. Data was systematically collected, entered into a REDCap database, and descriptive statistics calculated. Chi-squared tests were performed to explore potential associations. Results: Of the 364 CSEY, 70% were African-American, 23% Hispanic, 5% White, 1% Asian, and 1% other. 360 participants were female, 2 were male, and 2 were transgender male-to-female. The average age at referral to STAR Court was 16 years. Of the sample, 90% had reported substance use; 46% reported using 1-2 substances and 43% reported the use of 3 or more. The most prevalent substances reported were marijuana (87%), alcohol (54%), and methamphetamine (33%). The average age of first use for those substances was 12.8 years, 13.5 years, and 13.5 years, respectively. CSEY with 1 or more mental health diagnoses were 8.5 times more likely to report polysubstance use ($p < 0$ .001) and were 4.4 times more likely to report methamphetamine use ($p < 0$ .001) compared to those without a mental health diagnosis. Additionally, the rate of substance use by youth with previous child and protective services referrals for childhood maltreatment was 1.4 times the rate of use by those with no referrals ($p < 0$ .001); as the number of referrals increased, so did the likelihood that methamphetamine use was reported (OR=1.03, $p = 0.04$). Conclusions: High rates of substance use among judicially-involved CSEY in addition to the positive associations between substance use and both mental health challenges and maltreatment highlights the need for comprehensive, specialized treatment that addresses both substance use and mental health needs.

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ID: 722
The serotonin-2C agonist lorcaserin potentiates the subjective effects of cocaine, but not its self-administration

Ken Grasing, Kansas City VA Medical Center

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Stimulants

Topic: Treatment

Abstract: AIM: Lorcaserin is a selective agonist for 2C serotonin receptors approved by the FDA for weight-loss therapy. This class can attenuate cue-induced responding and drug taking in preclinical studies, but effects in humans have not been reported. Lorcaserin is marketed at a dose of 10 mg twice daily in patients with a medical indication for weight loss, such as diabetes or heart disease. Supratherapeutic doses are associated with both 'high' and negative subjective effects in liability testing, leading it to be classified as schedule IV. We evaluated effects of single 10 mg doses of lorcaserin on the subjective and reinforcing effects of cocaine, using a randomized, double-blind, placebo-controlled, laboratory design. METHODS: Non-treatment-seeking, regular cocaine users received either oral placebo (12 participants) or lorcaserin (n=9), followed by low- or high- doses of intravenous cocaine (0.23 or 0.46 mg/kg-injection). They were then allowed to self-administer the lower dose of cocaine. RESULTS: Cocaine was well tolerated after lorcaserin pretreatment. Subjects self-administered more active (cocaine) than placebo injections (3.95 ± 0.50 vs 2.05 ± 0.46 injections). Oral lorcaserin did not modify cocaine self-administration. However, latency for lever pressing collapsed across responding for either intravenous placebo or cocaine was prolonged after treatment with lorcaserin (11.27 ± 1.55. vs 7.48 ± 0.46 seconds). Lorcaserin increased several of the positive subjective effects of cocaine, including ratings of 'high', 'stimulated', and perceived drug value (2.35, 2.79, & 2.52 fold, respectively, for low-dose cocaine). It did not modify cocaine-induced craving or the Addiction Research Center Inventory subscales for stimulant effects. CONCLUSION: Based on a limited number of subjects, combined treatment with cocaine and lorcaserin appears safe. Lorcaserin prolonged response latency during self-administration, potentiated the subjective effects of cocaine, but did not modify drug reinforcement. Although only single doses were tested, lorcaserin did not have obvious anti-addictive properties in this setting.

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Contact Title: Assistant Professor

ID: 723
Non-medical use of prescription drugs and health-related quality of life among the general population in Taiwan: Results from the 2014 National Survey of Substance Use

Shang-Chi Wu, National Taiwan University, Epidemiology and Preventive Medicine

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Epidemiology

Abstract: Aims: To examine the association between non-medical use of prescription drugs and health-related quality of life (HRQoL) among the general population in Taiwan. Methods: Participants (N=17,837) of 2014 National Survey of Substance Use completed a survey questionnaire with information on their use of sedatives/hypnotics and analgesics, as well as HRQoL using EQ-5D. Regarding their use of sedatives/hypnotics or analgesics, participants were classified into non-users, medical-users, or non-medial users. We used multiple linear and logistic regressions to examine the association between use types of prescription drugs and HRQoL with adjustment for socio-demographic covariates. Sample weights were applied to adjust for complex survey design. Results: The lifetime prevalence of medical and non-medical use of sedatives/hypnotics were 8.31% and 1.61%, respectively, and that for analgesics were 6.91% and 4.95%. Compared to non-users, non-medical users of sedatives/hypnotics had greater association than medical users in the domain of pain/discomfort (adjusted odds ratio [aOR]: 3.34 vs. 2.93) and anxiety/depression (aOR: 5.32 vs. 4.29). Regarding analgesics, non-medical users had more problems in anxiety/depression (aOR: 2.43 vs. 2.23) but less problem in pain/discomfort (aOR: 2.61 vs. 2.99) than medical users did, compared with non-users. Regardless of sedatives/hypnotics or analgesics, non-medical users had lower overall rating score of health than their counterparts of medical users and non-users. Conclusion: The results imply that non-medical users of prescription drugs might have poorer HRQoL than medical users, especially in the domain of mental health.

Financial Support: Funding: grants from the Taiwan Food and Drug Administration (104TFDA-N-005)

First Name: Shang-Chi

Last Name: Wu

Degrees: MA MD Ph.D etc:: MS

Company Affiliation: National Taiwan University, Epidemiology and Preventive Medicine

ID: 724
The role of violence and mental health in alcohol use disorders among Black women at risk for HIV in Baltimore, MD

Kiyomi Tsuyuki, University of California San Diego Department of Medicine

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Alcohol

Topic: Dependence

Abstract: Aim: Intimate partner violence (IPV) is a worldwide epidemic, with 40% of Black women experiencing physical or sexual IPV in their lifetime. Alcohol use disorders (AUD) and mental health are strongly correlated with IPV. Emerging research indicates that mental health may mediate the association between IPV and AUD. This study examined the role of IPV and mental health in AUD among Black women. Methods: We analyzed cross-sectional data of Black women (n=202) seeking services in Baltimore STD clinics. Survey data was collected on IPV (CTS-2: past-year physical IPV, sexual IPV, cumulative IPV-both physical and sexual), mental health (CESD-10: past-week depression; NSESSS-Post Traumatic Stress Disorder (PTSD): past-month PTSD), and AUD (AUDIT: past-year). Linear regression models examined how IPV and mental health were independently associated with AUDIT score, then mental health was considered as a mediator if criteria were met. Results: Among women, 17% experienced physical IPV, 17% sexual IPV, and 13% cumulative IPV (both types of violence) in the past year; 38% had depression; 23% had PTSD; and 10% had AUD. Physical IPV (ß=2.81;95%CI:1.30,4.32;p-value < 0 .001), sexual IPV (ß=1.73;95%CI:0.19,3.27;p-value=0.03), and cumulative IPV (ß=2.97;95%CI:1.26,4.67;p-value < 0 .001) were associated with greater AUDIT score. Depression (ß=1.46;95%CI:0.25,2.67;p-value=0.02) and PTSD (ß=0.58;95%CI:-0.84,1.99;p-value=0.42) were associated with greater AUDIT score, but only depression was significant. We found that depression partially mediated the association between physical and cumulative IPV and AUDIT score, and fully mediate the association between sexual IPV and AUDIT score. Findings highlight the importance of addressing the mental health sequelae of IPV in order to reduce AUD among IPV survivors. Conclusion: Our results suggest that interventions to reduce AUD among female IPV survivors should focus on the mental health sequelae of IPV. Findings point to the importance of providing a continuum of multi-level and integrated AUD interventions, policies and trauma-informed alcohol treatment for Black women who are survivors of IPV.

Financial Support: This research was supported by grants from the Eunice Kennedy Shriver National Institute of Child Health and Human Development (R01HD077891 - support for J.K. Stockman, J.C. Campbell, A.N. Cimino, C.N. Holliday, and K. Tsuyuki; T32HD064428 - J. Campbell and A. N. Cimino), the National Institute of Alcoholism and Alcohol Abuse (K01AA025009 - K. Tsuyuki), the National Institute of Drug Abuse (K01DA031593 - J.K. Stockman), the National Institute on Minority Health and Health Disparities (L60MD003701 - J.K. Stockman; L60MD011184 - K. Tsuyuki), Johns Hopkins University Center for AIDS Research (P30AI094189), and the UCSD Center for AIDS Research (P30AI036214).

First Name: Kiyomi

Last Name: Tsuyuki

Company Affiliation: University of California San Diego Department of Medicine

ID: 725
White matter abnormalities in cocaine use disorder: are there differences between snorted cocaine and crack cocaine users?

Mauricio Serpa, University of São Paulo

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Stimulants

Topic: Imaging

Abstract: AIM: In recent years, neuroimaging studies have shown an association between cocaine use and abnormalities in brain white matter (WM). Cocaine is generally consumed in two different forms: as a salt (snorted use) and as an alkaloid (known as “crack”; smoked use). To the best of our knowledge, no study to date has investigated whether such WM changes in cocaine users may vary depending on snorted and smoked use. We sought to examine differences in brain WM microstructure of cocaine hydrochloride salt (CS) and crack cocaine (CC) users. METHODS: Diffusion weighted images (DWI) were acquired from 52 adult participants (32 cocaine users, and 21 healthy controls, HC) with a 3T magnetic resonance imaging (MRI) scan. 12 out of 32 (37.5%) patients were CC users. We used tract-based spatial statistics (TBSS) to extract fractional anisotropy (FA) skeletonized maps. Between-groups comparisons and correlation analyses between clinical variables and FA maps were conducted with Statistical Parametric Mapping (SPM12). Only clusters comprising at least 10 contiguous voxels and surviving correction for multiple comparisons (Family-wise Error) were reported. RESULTS: Whole-group comparisons showed FA reductions in the corpus callosum, anterior thalamic radiation and frontotemporal WM in cocaine users. After controlling for age, gender and education level, subgroup analyses demonstrated lower FA only in CS in comparison to HC. No correlations between age of first use or years of use and FA were observed. CONCLUSION: Our results reinforce the likely neurotoxicity of cocaine use on brain WM. Surprisingly, WM microstructure abnormalities were associated to snorted use, but not to smoked use. Nonetheless, studies with larger number of participants are warranted.

Financial Support: National Council for Scientific and Technological Development - CNPq, Brazil (402721/2010-1) and São Paulo Research Foundation FAPESP, Brazil (2010/01272-6).

First Name: Mauricio

Last Name: Serpa

Degrees: MA MD Ph.D etc:: MD, Ph.D

Company Affiliation: University of São Paulo

ID: 726
Dynamic model of first-time offenders of illicit drug use trajectory in Taiwan

Wei J. Chen, National Taiwan University College of Public Health

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Epidemiology

Abstract: Aims: To model the first-time offenders of illicit drug use trajectory in Taiwan via a dynamic modeling method. Methods: We created a preliminary dynamic model for various status of illicit drug use, including drug naïve, initiation, continued use, quit, captured by the law enforcement, and voluntary treatment, using software Stella Architect. Parameters were estimated from the results of national surveys and the drug-related databases from governmental departments. Regarding uncertain parameters, e.g., capture rate, were first assumed then adjusted through the fitness-improving process by adding more information. The target of simulation was the number of first-time illicit drug offenders derived from an integrated governmental database from 2009 to 2014. Results: First-time offenders involving Schedule I to IV illegal drugs were determined by the absence of such records before 2009 and the year of their first time appearance in the integrated governmental database. The number of such offenders from 2009 to 2014 was 12157, 16545, 15988, 17428, 17765, and 13300. In the beginning, our preliminary model was able to fit the time trend of number of new drug offenders captured by the police from 2009 to 2014, except for the fluctuation in 2011 and 2013 (error rate was 10.5% in 2011 and -10.0% in 2013, respectively; the rest of years < ±3%). After adjusting for the capture rate with an undulating pattern considering the proportion of drug-related crimes in total crimes in previous year, the prediction improved, with the error rate in 2011 decreased to -2.4% but that in 2013 remaining at -13.8%. Conclusion: Our results showed the feasibility of dynamical modeling of first-time offenders of illicit drug use trajectory, and may offer great potential for evaluating policy intervention effectiveness.

Financial Support: Funding: grants from the Taiwan Food and Drug Administration (MOHW106-FDA-D-114-000661).

First Name: Wei J.

Last Name: Chen

Degrees: MA MD Ph.D etc:: MD, ScD

Company Affiliation: National Taiwan University College of Public Health

ID: 727
Knowledge synthesis of the effectiveness of prescription monitoring programs

Beth Sproule, Centre for Addiction and Mental Health

Abstract Category: Literature Review

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Prevention

Abstract: Aim: Prescription monitoring programs have been advocated as an important element in addressing the problem of prescription drug addiction. They have been implemented widely, although the approaches taken in structuring prescription monitoring programs vary considerably. The objectives of this work are to gather, examine and synthesize the evidence evaluating the effectiveness of prescription monitoring programs. Methods: The design was guided by the PRISMA-P 2015 checklist. A literature search strategy was designed and conducted by a librarian. Study data management was facilitated using Distiller SR software. Results: Preliminary findings are reported here. Over 2,400 references were initially identified demonstrating the growing interest and reporting in this area. Approximately 10% were determined to be original research rather than reviews or commentaries. There have been a number of approaches taken to evaluate prescription monitoring program outcomes, ranging from shorter term outcomes such as the impact on prescribing practices and user satisfaction, to longer term outcomes such as rates of overdose death and other harmful consequences from prescription products. Attribution to prescription monitoring programs for these outcomes is challenging to establish since there are many influencing factors, including other concurrent policy or harm reduction initiatives, and the validity of the comparisons (pre-post implementation conditions, jurisdictions with and without programs). The variable program features include the types of interventions employed or the types of drugs monitored. Emerging research is evaluating these features to establish what works best and under what circumstances. In addition, clinicians' perceptions, practices and clinical decision making in relation to prescription monitoring data at point of care have been explored. Conclusions: The current evidence of the effectiveness of prescription monitoring programs has inconsistencies, yet is growing and promising. Of particular importance is the need to evaluate the features of these programs associated with success.

Financial Support: Canadian Institutes of Health Research (CIHR)

First Name: Beth

Last Name: Sproule

Degrees: MA MD Ph.D etc:: Pharm.D.

Company Affiliation: Centre for Addiction and Mental Health

ID: 728
Respiratory physiology of healthy smokers during distress intolerance testing

Delcora Huggins, Johns Hopkins University School of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Alternative Medicine

Abstract: Distress intolerance (DI) is a significant predictor of smoking relapse. DI is characterized by shorter Breath Holding Duration [BHD], longer time to recovery after Hyperventilation challenge [HV] and shorter time to hand withdrawal in Cold Pressor Test [CPT]. However, the changes in respiratory physiology underlying DI have not been explored and could be important since shorter BHD and longer time to recovery after HV are hallmarks of chronic hyperventilation and hypocapnia (End-tidal CO2 [ETCO2] 2 values (33.5±2.9 vs 34.8±3.4, p 2 and latency to smoking lapse. Conclusion: Our preliminary data suggest that smokers present with hypocapnia, a sign of hyperventilation, and that there are minor differences between ETCO2 during smoking and abstinence, although in the opposite direction than we predicted. If our results are confirmed, the respiratory psychophysiology of DI could represent a treatment target to facilitate smoking cessation via breathing retraining.

Financial Support: Internal funding through the Funds for Addiction and Integrative Therapeutics

First Name: Delcora

Last Name: Huggins

Company Affiliation: Johns Hopkins University School of Medicine

Contact Title: Assistant Professor

ID: 729
“Generally, you get 86’ed because you're a liability.” Social consequences of frequent overdoses among drug using networks

Jeanette Bowles, University of California San Diego

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Other

Abstract: Background: The fatal opioid overdose crisis is in part fueled by risk factors including adulterated street opioids and consuming drugs alone. Drug consumption in the presence of fellow drug users can be protective against accidental overdose death, as peers are capable of intervening in emergency situations. However, various factors may damage one’s social standing among drug-using networks. One such factor might include overdosing, as the incident disrupts network members’ drug use and may draw unwanted attention from police. In fact, previous research has found that some drug users trained in overdose response may cut social ties with individuals who frequently overdose. Network members distancing themselves from the person who overdosed could lead to more episodes of injecting alone – a known risk factor for overdose death. Methods: We hypothesized that non-fatal overdoses led to social distancing from the person who overdosed. To investigate this, we qualitatively explored such social sanctions following witnessed non-fatal overdoses. To date, 36 in depth interviews with drug users who had recently witnessed an opioid overdose were collected in Southern California. Transcripts were reviewed and coded thematically to uncover the effect of non-fatal overdoses on social standing. Results: Some participants stated frustration with persons who overdose and reported blatant desire to cease drug consumption in their presence, typically due to accusations of greedy, careless, and excessive drug use practices. Persons who overdosed were considered at-fault for having overdosed, which to some participants was considered a “social faux pas.” While some drug users acknowledged the role of adulterated street opioids in overdoses, findings revealed that individualized blame was nonetheless imposed and damaged the social standing of the person who overdosed. Conclusion: In some cases, damage to social standing from overdosing appears to result in exclusion from drug using networks and might dampen exposure to peer-led interventions such as naloxone and other harm reduction programming. Suggestions for tailoring public health interventions to address this phenomenon will be discussed.

Financial Support: NIH/NIDA R01DA040648

First Name: Jeanette

Last Name: Bowles

Degrees: MA MD Ph.D etc:: DrPH

Company Affiliation: University of California San Diego

ID: 730
Trends in receptive syringe sharing and correlates of ‘ever’ sharing among a cohort of people who inject drugs regularly in Melbourne, Australia

Danielle Horyniak, Burnet Institute

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Epidemiology

Abstract: AIM: Receptive syringe sharing (RSS) is a risk factor for the transmission of HIV and Hepatitis C virus (HCV). Although recent estimates suggest that, globally, one in four people who inject drugs (PWID) report past-year RSS, little is known about PWIDs’ patterns of RSS over long periods of observation. Using data from a prospective cohort of PWID in Melbourne, Australia, we aimed to: (1) describe trends in the prevalence of past-month RSS, and (2) measure the prevalence and identify correlates of ‘ever’ reporting past-month RSS at any time during the period of observation. METHODS: This analysis utilised data from 757 PWID interviewed annually between 2008 and 2017 [3570 interviews; median 5 visits (range: 1-8 visits)]. Baseline socio-demographic and drug use characteristics associated with ‘ever’ reporting past-month RSS were identified using multivariable logistic regression. RESULTS: The annual prevalence of past-month RSS ranged between 8% and 16% (average annual prevalence: 11.4%); no significant trend over time was observed. One third (33%) of participants reported last engaging in RSS in the past year and 26% in the past 2-5 years (time since last RSS first asked in 2015, n=418). One quarter of participants (25%) reported past-month RSS at any interview during the period of observation, among whom most (63%) reported only one RSS event. Two-thirds of PWID who reported past-month RSS at baseline did not report RSS at their final interview. Compared with participants who 'never' reported RSS during the period of observation,‘ever’ reporting RSS was significantly associated with being female (AOR:1.79, 95%CI:1.26-2.54), HCV sero-positivity (AOR:1.79, 95%CI:1.22-2.61), being recruited in Melbourne’s Inner West (AOR:2.73, 95%CI:1.68-4.45) or Outer-Urban areas (AOR:2.50, 95%CI:1.42-4.39) and reporting a recent heroin overdose at baseline (AOR:1.77, 95%CI:1.03-3.04). CONCLUSION: Although RSS was a rare event among this cohort of regular PWID, our findings underscore the continued importance of needle and syringe exchange programs.

Financial Support: The MIX study was funded by The Colonial Foundation Trust and the Australian National Health and Medical Research Council (NHMRC Project Grant #545891). DH, JH, D’OK and PD are supported by the NHMRC: Early Career Fellowship (DH, JH), Postgraduate Scholarship (D’OK) and Senior Research Fellowship (PD), respectively.

First Name: Danielle

Last Name: Horyniak

Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: Burnet Institute

ID: 731
Bidirectional, CB1 receptor-mediated mechanisms of cocaine-memory reconsolidation and subsequent context-induced cocaine-seeking behavior

Jessica Higginbotham, Washington State University

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Stimulants

Topic: Neurobiology

Abstract: AIM: Memory reconsolidation interference can weaken context-drug associative memories and thereby mitigate drug relapse propensity. Cannabinoid type 1 receptors (CB1R) regulate synaptic plasticity underlying various memory processes, including memory reconsolidation. However, the mechanisms by which CB1R contribute to instrumental cocaine-memory reconsolidation remain unclear. The present study tested the hypothesis that CB1R stimulation promotes cocaine-memory reconsolidation through the induction of plasticity-related proteins (PRPs) in the basolateral amygdala (BLA) and dorsal hippocampus (DH) and hypothalamic pituitary adrenal (HPA) axis activation. METHODS: Male Sprague-Dawley rats (n=5-11/group) were trained to lever press for intravenous cocaine infusions in a distinct environmental context (10 days) followed by extinction training in a different context (7 days). Next, memory reconsolidation was precipitated by brief re-exposure to the cocaine-paired context. Groups received vehicle (VEH) or the CB1R antagonist, AM251 (3 mg/kg, IP or 0.3µg/0.5µL/side, intra-BLA), immediately or 6 hours after cocaine-context or home cage exposure. Cocaine-seeking behavior (non-reinforced active lever presses) was assessed 72 hours later in the cocaine-paired context. BLA and DH tissue collected 45 minutes after treatment or after the 2-hour reinstatement test was analyzed for PRP expression/phosphorylation. Serum samples were analyzed for corticosterone concentrations pre- and post-extinction, post-cocaine context re-exposure, and after intra-BLA treatment. RESULTS: PRP expression/phosphorylation significantly increased during memory reconsolidation in the BLA and DH (p

Financial Support: NIH NIDA R01 DA025646

First Name: Jessica

Last Name: Higginbotham

Company Affiliation: Washington State University

ID: 732
Association of insurance coverage with specialty treatment, buprenorphine treatment, and stable primary care in a cohort of adults who have injected drugs.

Kenneth Feder, Johns Hopkins Bloomberg School of Public Health

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: Aim: Expanded Medicaid coverage under the Affordable Care Act may help facilitate access to substance use treatment for people with opioid use disorder. However, evidence for the effect of having health insurance on utilization of substance use treatment is mixed. This study examines the effect of health insurance coverage on substance use treatment utilization in a cohort of people who have injected drugs. Methods: Data come from the AIDS Linked to the Intravenous Experience (ALIVE) cohort, a cohort of adults in Baltimore who have injected drugs at least once in their life. Participants who attended at least two study visits during 2006-2017 (1,748 participants, 18,869 visits) were included. The study assessed the association of having insurance coverage with the odds of each of three self-reported outcomes: receipt of specialty substance use treatment, receipt of a buprenorphine prescription, and having a usual source of primary care. Random-intercept logistic regression was used to account for repeated measures. Models were adjusted for potential confounders, including a range of demographic characteristics, substance use measures, HIV status, and previous treatment utilization. Results: Over the 12-year study period, the uninsured rate among adults in this cohort fell from 35% to 2%, mostly due to increases in Medicaid coverage. Participants were significantly more likely to receive specialty substance use treatment (AOR 2.2, 95% CI 1.9 to 2.6), receive buprenorphine treatment (AOR 3.0, 95% CI 2.0 to 4.6), and have a regular source of primary care (AOR 8.4, 95% CI 7.2 to 9.9) during six-month periods when they were insured. Conclusion: Findings suggest preserving and expanding public health insurance programs may increase use of specialty and medication-assisted substance use treatment and regular primary care, all critical steps toward addressing the ongoing opioid epidemic.

Financial Support: Mr. Kenneth Feder is supported by grant 1F31DA044699-01 from the National Institute of Drug Abuse, and by a Doris Duke Fellowship for the Prevention of Child Maltreatment. Ms. Noa Krawczyk was partly supported by grant T32DA007292 from the National Institute of Drug Abuse. This research was partly supported by grant R01DA039863 from the National Institute of Drug Abuse.

First Name: Kenneth

Last Name: Feder

Company Affiliation: Johns Hopkins Bloomberg School of Public Health

ID: 733
A survey study characterizing use of kratom (Mitragyna speciosa)

Albert Garcia-Romeu, Johns Hopkins University School of Medicine

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: Aims: Characterize kratom user demographics, use patterns, perceived therapeutic benefits, and adverse effects. Methods: Anonymous online survey responses were collected between January and October, 2017. Results: 2989 current kratom users, mean age 40 (SD=12), completed the survey. Participants were predominantly White (90%;n=2679), female (61%;n=1816), and located in the US (99%;n=2954); 48%(n=1441) were college educated. 48% (n=1418) were married. 81% (n=2417) reported using kratom in the 24 hours before completing the survey. Kratom was primarily taken orally in doses of 1-3 grams per occasion (49%;n=1450), with daily use (59%;n=1769) being most common. Most reported using kratom for pain (89%;n=2673), anxiety (65%;n=1938), and depression (61%;n=1830). 1164 (39%) used kratom to stop or reduce prescription or illicit opioid use, attributing substantial decrease in opioid withdrawal and craving to their kratom use, with 608 reporting continuous abstinence from opioids during the past year. 584 (20%) reported adverse effects of kratom; of these only 20 individuals reported seeking treatment for adverse effects. Adverse effects were largely rated as mild in severity and lasted < 2 4 hours. Based on past-year kratom use, 72 individuals (2%) met DSM-5 criteria for a moderate or severe kratom-related substance use disorder (SUD). 2157 (72%) stated they never experienced any kratom-related withdrawal symptoms. When asked how troubled they felt regarding their kratom use, participant ratings were a mean (SD) of 3.4 (10.2) on a scale from 0-100. Conclusions: Data indicate kratom is currently being used among White, educated, middle-aged Americans for symptoms of pain, anxiety, depression, and opioid withdrawal. Although daily use was common, moderate or severe kratom-related SUD and endorsement of being troubled by kratom use were very low. Thus kratom, whose effects are hypothesized to be opioid receptor-mediated, may differ from typical prescription and illicit opioids. Controlled research on kratom pharmacology, therapeutic potential, and possible abuse liability is warranted.

Financial Support: NIDA R01DA003889 & NIDA R01DA035246

First Name: Albert

Last Name: Garcia-Romeu

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Johns Hopkins University School of Medicine

ID: 734
Depression, anger, and drug use trajectory over one year in people who use marijuana, opioids, and stimulants

Landhing Moran, NIDA Intramural Research Program

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Treatment

Abstract: Aim: Various psychological factors have been linked to the development of substance use disorders (SUD). We sought to determine if measures of mental health could predict drug use trajectory over a one-year period. We hypothesized that worse mental health would be associated with deterioration in drug use status. Methods: Participants who used opioids, cocaine, or marijuana, and participants not using drugs answered self- and interviewer-administered assessments of mental health and substance use, including the Profile of Mood States (POMS), which assesses mood in the past month, and were grouped according to current substance use: opioid and/or cocaine-using (n=140), marijuana-using (n=32), and non-drug-using (n=130). Based on the number of DSM-5 SUD criteria met at baseline and one year later, participants were categorized as stable, deteriorated, or improved. Multinomial logistic regression was used to test whether the mental health composite score, calculated as the average percentile across all mental health questionnaires, predicted drug use trajectory for each group, using "stable" as the reference category. Results: The opioid/cocaine-using group and the marijuana-using group had higher average mental health composite scores at visit 1 than the non-drug-using group, $F(2,249)=31.2$, $p < 0$ .0001, indicating worse overall mental health. Composite scores did not predict drug use trajectory in any group. In exploratory analyses, individual mental health assessments also did not predict trajectory in the opioid/cocaine-using group or in the non-drug-using group. In the marijuana-using group, POMS depression and anger subscales predicted SUD trajectory. Higher scores on the depression and anger subscales at baseline were associated with higher likelihood of symptom deterioration 12 months later (Depression, OR 3.3, CL95 1.16-9.47, p=0.025; Anger, OR 7.58, CL95 1.22-47.20, p=0.03). Conclusion: Depression and anger may be risk factors for worse drug use trajectory in marijuana users. Knowledge of specific mental health problems in different drug-using populations can inform prevention and treatment interventions.

Financial Support: This work was supported by NIDA-IRP.

First Name: Landhing

Last Name: Moran

Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: NIDA Intramural Research Program

ID: 735
The effect of a recombinant humanized anti-cocaine monoclonal antibody on the urinary clearance of cocaine and metabolites in rats

Jordan Marckel, University of Cincinnati, College of Medicine

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Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Stimulants

Topic: Treatment

Abstract: AIM The concentration of cocaine and its metabolites in urine is the standard measure of cocaine usage in humans. In clinical trials, these measures are used to determine efficacy for immunotherapies, such as the cocaine vaccine. A novel humanized anti-cocaine monoclonal antibody (mAb), h2E2, is at an advanced stage of pre-clinical development for the treatment of cocaine abuse. However, h2E2's ability to bind to cocaine could inhibit its metabolism and/or prevent urinary clearance of cocaine and its metabolites. Therefore, the aim of this study was to determine the effects of the anti-cocaine mAb h2E2 on cocaine and metabolite levels in the urine of rats. METHODS 12 adult male Sprague-Dawley rats were placed individually in metabolic cages. After a 48-hour acclimation period, urine was collected every 6 hours over 24 hours to provide a baseline measurement of urine output. A dose of 123 mg/kg of h2E2 (n=6 rats)(10 mM PBS, pH 7) or an equivalent volume of vehicle (n=6 rats)(PBS, pH 7) was infused. One hour after h2E2/vehicle infusion, an equimolar dose of cocaine HCl (0.56 mg/kg) was rapidly injected. Rats were returned to the metabolic chambers, and urine collected every 6 hours over 24 hours. Cocaine, benzoylecgonine (BE), and ecgonine methyl ester (EME) were quantified using liquid chromatography-electrospray-ionization-tandem mass spectrometry. Urine creatinine excretion, osmolality, and other parameters were quantified to determine overall kidney function throughout the experiment. RESULTS In h2E2 treated rats, cocaine and BE urinary excretion was significantly ($p < 0$ .05, t-test) decreased by 92% and 91%, respectively from vehicle. EME excretion was significantly increased initially by approximately 3.4-fold by h2E2. CONCLUSION Due to the dramatic decrease in cocaine and BE urinary excretion, cocaine and BE may not be appropriate measures of cocaine usage in the presence for h2E2. Therefore, in the future clinical trials of h2E2, EME would be the most appropriate measure of cocaine usage.

Financial Support: Registration, membership fees, travel, and housing will be paid for by advisor's grant and supplemented with possible travel awards

First Name: Jordan

Last Name: Marckel

Degrees: MA MD Ph.D etc:: BS

Company Affiliation: University of Cincinnati, College of Medicine

ID: 736
Cognitive function in aging cocaine smokers

Thomas Chao, New York State Psychiatric Institute

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Stimulants

Topic: Other

Abstract: Aim: Older drug users pose challenges to public health systems, yet little is known about their function. One such aging population is cocaine smokers. In this study, we assessed cognitive function in older (50-60 years old) cocaine smokers (≥twice/week) relative to matched controls. To better match groups, controls were allowed to report use of cannabis, tobacco, and alcohol. Methods: 22 non-treatment-seeking older cocaine smokers and 19 controls completed a cognitive battery assessing: (1) attention; (2) response inhibition/mental flexibility; (3) psychomotor speed/information processing; (4) visual and verbal working memory; and (5) verbal memory and fluency. All cocaine users, and controls reporting current cannabis or alcohol use, completed testing after 4 drug-free inpatient days to control for acute and residual drug effects. Results: Cocaine users (52.9±2.5 years old, 4F; cocaine use 3.9±1.4 days/week) and controls (52.7±2.6, 4F) were well-matched demographically, but cocaine users had somewhat higher use of cannabis, alcohol, and cigarettes. Cocaine users performed worse on a verbal learning task relative to controls, showing lowered learning with repeated trials ($p < 0$ .05). They also made more errors in a verbal fluency task (i.e. repetitions; $p < 0$ .05), with no difference on other indices of verbal fluency. Cocaine users were intact relative to controls across all other cognitive function measurements. Conclusion: These data suggest that, when tested under controlled conditions, older cocaine users perform similarly to controls across most aspects of cognitive function. They had decrements in verbal learning and made more errors on a verbal fluency task. The specific etiology of these differences is unknown given the cross-sectional design and higher use of drugs other than cocaine in the cocaine users. Findings underline the importance of careful experimental control in studies of this type and support further investigation of cognitive function in older drug users.

Financial Support: Financial Support: DA030540 and DA034877

First Name: Thomas

Last Name: Chao

Degrees: MA MD Ph.D etc:: PhD

Company Affiliation: New York State Psychiatric Institute

ID: 737
Typical MDMA dose per session differs by lifetime frequency and route of administration

James Sottile, Palo Alto University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Club/Designer Drugs

Topic: Tolerance/Dependence

Abstract: Aim: MDMA users report the development of chronic tolerance over time (Parrot, 2005), which may lead users to engage in binge use or to change their route of administration (ROA) to recapture subjective positive effects. Binge use, in which users consume multiple doses of MDMA per session, has been known to increase risk of hyperthermia, neurotoxicity, and death among animal models (Rodsiri et al., 2011). ROA affects pharmacokinetics of MDMA in animal models (Baumann et al. 2009), however human data is limited due to ethical concerns related to dosing. We hypothesized that nasal route of administration and higher lifetime frequency would be associated with higher typical MDMA dose. Methods: Participants were 1732 MDMA users (Mage = 25.7, SD = 8.32, 87% white, 81% male) who completed a brief online survey that inquired about typical number of doses per session, lifetime frequency of MDMA use (i.e., number of times used in lifetime), and preferred route of administration (i.e., oral, nasal, rectal). Participants were recruited through harm reduction websites and organizations including Erowid.org, DanceSafe, and Zendo Project. Results: Significant main effects of lifetime frequency ($F(10, 1692)=6.108$, $p < .001$) and ROA ($F(7, 1692)=3.394$, p
Financial Support: None

First Name: James

Last Name: Sottile

Degrees: MA MD Ph.D etc:: MS

Company Affiliation: Palo Alto University

ID: 738
Effect of abstinence and cue re-exposure on DNA methylation and mRNA expression after cocaine self-administration

Kyle Ploense, University of California Santa Barbara

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Stimulants

Topic: Neurobiology

Abstract: Aim: Cocaine addiction is a chronic disorder whereby cocaine craving in response to drug related cues and relapse to drug taking persist, and even intensify, through protracted drug-free abstinence periods. Studies employing animal models observe similar patterns in addicts as well as with other species, where both exhibit cocaine-seeking that not only persists through protracted periods of drug withdrawal, but also after re-exposure to cocaine cues. Additionally, there are long term changes in neuron structure, receptor function, and neurotransmission associated with abstinence and in extinction from cocaine in humans and animals. Methods: In the present study, I exposed rats to saline (1 h) or limited (1 h), prolonged (6 h), or limited + yoked (1 h contingent + 5 h non-contingent) access to cocaine for 15 days followed by forced abstinence for 1, 14, or 60 days. I then dissected the dmPFC and measured levels of methylated DNA or mRNA for Homer2, Dlg4, Npas4, and Grin1 via digital PCR. Additionally, I exposed Prolonged and saline-access rats to cocaine cues for 2 hours following 60 days of abstinence. Results: Briefly, rats exposed to saline, limited-cocaine, or prolonged-cocaine, experienced time-dependent changes in DNA methylation in Homer2, Dlg4, Npas4, and Grin1. However, changes in mRNA expression did not exhibit strong correlation changed in DNA methylation, but rather by drug-access condition. Although, re-exposure to cocaine cues resulted in immediate changes in DNA methylation, and corresponding mRNA expression in prolonged-access rats. In conclusion, DNA methylation is dynamic over abstinence, but mRNA expression appears to be stable. However, after re-exposure to cues associated with learning, rats will exhibit immediate changes in DNA methylation and mRNA expression.

Financial Support: NIH DA-027115 NIH DA-027525 NIH DA-024038 W.M. Keck Foundation

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Degrees: MA MD Ph.D etc:: MA

Company Affiliation: University of California Santa Barbara

ID: 741
Characterizing the preferences and practices of those who use marijuana for medical purposes

Andrew Fiore, University of Florida

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Epidemiology

Abstract: Aims: To develop medical marijuana legislation that reflects the wishes of constituents and the reality of marijuana use, lawmakers need to consider norms and preferences of medical marijuana users. Methods: Participants were recruited through MTurk. The survey yielded 391 respondents, 115 of whom use marijuana. Medical marijuana users were defined as anyone who self-reported using marijuana for medical purposes, or both medical and recreational purposes. Recreational users were defined as those who reported only using for recreational purposes. Results: 53.0% (n = 61) used medical marijuana and 47.0% (n = 54) used recreational. 52.7% of medical marijuana users consume marijuana at least once per day, compared to 16.6% of recreational users ($p < 0.001$). This may coincide with 68.3% of medical marijuana respondents reporting that it would be difficult to cease marijuana use for 30 days, compared to only 35% of recreational users ($p = .006$). For all both user groups, about 80% preferred to smoke their marijuana. Counterintuitively, only 27.9% of medical users have used ≥ 4 grams of marijuana per month, compared to 48.1% of recreational users ($p = 0.040$). Comparing WHO ASSIST scores, a measure of cannabis use disorder, medical users were scored significantly higher ($p = .0031$) The most common reasons of medical use were to relieve anxiety, depression, or stress (35.5%), to help sleep (33.0%), and to relieve pain (28.8%). Conclusions: These results show that legislation restricting access to smoked medical marijuana runs counter to preferred practices. Characteristics of medical marijuana users indicate higher dependency than recreational users.

Financial Support: Southern HIV and Alcohol Research Consortium

First Name: Andrew

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Company Affiliation: University of Florida

ID: 742
Adapting an addiction technology transfer model to address HIV and injection drug use in Ukraine

Anna Blyum, University of California San Diego

Abstract Category: Program Descriptions

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Other

Abstract: AIM Injection drug use is the primary driver of Ukraine's HIV epidemic affecting HIV incidence and the continuum of care. For example, fewer HIV-infected Ukrainians who inject drugs (PWID), compared to those who do not inject drugs, are aware of their HIV status. Barriers to accessing HIV testing and treatment fuel HIV-related morbidity and mortality among Ukrainian PWID and HIV transmission to their sexual partners. Addressing substance use is therefore critical to large-scale efforts to prevent and treat HIV. Against this backdrop, the Substance Abuse and Mental Health Services Administration (SAMHSA) with funding from the President's Emergency Plan for AIDS Relief (PEPFAR) established the International Addiction Technology Transfer Center (I-ATTC) in Ukraine. The focus of the I-ATTC is to provide training, technical assistance, and technology transfer in addiction treatment to enhance HIV prevention and treatment. METHODS The five-year project began in November 2017, is led by UCSD, the Ukrainian Research Institute for Social and Forensic Psychiatry and Drug Abuse, and UCLA, and is based on a broad collaboration of Ukrainian and international governmental and nongovernmental organizations. With the cooperation of stakeholders, the I-ATTC hopes to meet its objectives through the following: Convening an opening conference; Forming an Advisory Board; Performing a needs assessment to promote partnership and innovation; Carrying out a collaborative plan; Establishing a national entity responsible for drug and alcohol policy. RESULTS The I-ATTC generated great enthusiasm among 130 stakeholders who attended the Opening Conference. At the conference, the I-ATTC formalized plans to: 1) address identified policy and structural barriers that influence epidemics; 2) professionalize addiction treatment workforce; 3) build capacity through technology transfer in prevention, treatment, rehabilitation, monitoring and evaluation. CONCLUSION The I-ATTC will enhance existing efforts to achieve HIV epidemic control in Ukraine and reduce the burden of intertwined, mutually enhancing SUD and HIV epidemics in Ukrainian communities.

Financial Support: Financial Support: SAMHSA Corporate Agreement 1 H79 TI080578-01

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Degrees: MA MD Ph.D etc:: MS, PhD in progress

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ID: 743
Trends in self-reported and biochemically tested marijuana use among pregnant adolescents and adults in California from 2009-2016

Kelly Young-Wolff, Kaiser Permanente Northern California

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Epidemiology

Abstract: AIMS: This study aimed to investigate trends of prenatal marijuana use from 2009-2016 using data from Kaiser Permanente Northern California's (KPNC) large healthcare system with universal screening via self-report and urine toxicology. METHODS The sample comprised 279,457 pregnant KPNC women who completed a cannabis toxicology test and a self-administered questionnaire on marijuana use "since pregnancy" as part of standard prenatal care from 2009-2016. We estimated the adjusted prevalence of prenatal marijuana use annually using Poisson regression with a log link function, controlling for age, race/ethnicity, and income, and tested for linear trends and differences in trends by age. RESULTS The sample was 36.0% White, 27.9% Hispanic, 16.6% Asian, 5.9% Black, and 13.6% Other; 1.4% were aged 12-17, 15.8% 18-24, 61.6% 25-34, and 21.2% >34. From 2009-2016, the adjusted prevalence of prenatal marijuana use based on self-report or toxicology increased from 4.2% (95%CI, 4.0%-4.5%) to 7.1% (95%CI, 6.7%-7.5%) and was approximately twice as high based on toxicology versus self-report. The adjusted prevalence based on self-report or toxicology increased significantly for each age group, and trends varied by age (P = .02). Adolescent women (aged 34 increased from 3.4% (95%CI, 3.1%-3.7%) to 5.1% (95%CI, 4.7%-5.4%) and from 2.1% (95%CI, 1.7%-2.5%) to 3.3% (95%CI, 2.9%-3.7%), respectively. CONCLUSION From 2009-2016, prenatal marijuana use among KPNC females increased from 4% to 7%, with ~1 in 5 adolescents and young adults screening positive for in 2016. Prevalence was higher via toxicology screening than self-report, suggesting that use may be underestimated in self-reported surveys. Research is needed to monitor trends in use, exposure timing, and associated maternal and infant outcomes, particularly as marijuana potency rises and legalization becomes more widespread.

Financial Support: This study was supported by a Grant from the Kaiser Permanente Community Benefits Program and a NIH NIDA K01 Award (DA043604).

First Name: Kelly

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Degrees: MA MD Ph.D etc:: PhD, MPH

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ID: 744
Birth control use and talking with health professionals about birth control in female patients receiving treatment for opioid use disorder in rural Appalachia

Jonathan Stoltman, West Virginia University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Sex Differences

Abstract: Aim: West Virginia leads the nation in neonatal abstinence rates (Stabler et al., 2016). Compared to the general population, pregnant women in treatment for opioid dependence experience double the unintended pregnancy rates (Heil et al., 2011). These two issues may be traced back to limited birth control usage, knowledge, and access (Terplan et al., 2015). Methods: Non-pregnant, currently fertile, hetero or bisexual women enrolled in an opioid treatment clinic (N=96; M+SD=31.2+6.4 years old; 93.8% Caucasian) completed a survey on sexual health. Recruitment is ongoing. Questions included: current birth control use (yes/no); pregnancy intention (One Key Question format [OKQ], "Would you like to become pregnant in the next year?", yes/no/maybe/don't know); birth control technique knowledge (summed yes/no list of 12 birth control methods learned from a health professional); recency of talking to a health professional about birth control (less than a year/more than a year). The analysis strategy included frequencies, Spearman correlations, and a binary logistic regression. Results: Overall, 92.7% of participants indicated a sexual partner in the past year. Current birth control use was not correlated with OKQ (p=.636) or birth control technique knowledge (p=.848), but was associated with recency of talking to a health professional about birth control ($X^2(3)=12.7$, p=.005) with the model correctly predicting 68.9% of participants. Participants who had talked about birth control with a health professional in the last year were significantly more likely to be using birth control currently [Exp(B)=5.11, 95%CI=1.96, 13.4]. Conclusion: In this sample of reproductive aged women in treatment for opioid dependence, current birth control use was low (32.3%), though 83.3% did not want to be pregnant in the next year. The most important predictor of current birth control use was recency of talking with a health professional about birth control. These findings may help bring awareness to a gap in services at opioid treatment clinics.

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First Name: Jonathan

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ID: 745
Are prior drug use behaviors associated with subsequent initiation of injection drug use?

Daniel Chu, Keck School of Medicine University of Southern California

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Behavior

Abstract: Aim: To identify prior drug use exposures associated with changes in survival time to injection initiation. Background: Understanding the processes that affect time to injection initiation is important to reducing the incidence of initiating injection drug use. Drug use exposures prior to injection may be predictive of injection timing, with exposures promoting or impeding subsequent injection initiation. Methods: Data were from 777 active people who inject drugs (PWID) in Los Angeles and San Francisco, CA from 2011-2013. Time to injection initiation (TTII) in years was calculated by subtracting the age at first drug use from the age at first injection. TTII survival analysis incorporated demographic covariates (birth year, sex, and race/ethnicity) and pre-injection drug use exposure predictors for cannabis, crack cocaine, powder cocaine, heroin, methamphetamines, non-medical prescription opiate use, stimulants, and tranquilizers. Results: Younger age was significantly associated with increased injection hazard (hazard ratio = 1.02) whereas being female (HR = 0.75) or being black (HR = 0.67) or Latino (HR = 0.81) decreased injection hazard, compared to white. All significant estimates for pre-injection exposures decreased injection hazard: cannabis (HR = 0.15), crack (HR = 0.52) and powder (HR = 0.48) cocaine, methamphetamines (HR = 0.68), opiates (HR = 0.69), and tranquilizers (HR = 0.82). Heroin use appeared to increase injection hazard (HR = 1.10) but was not significant. Conclusion: Some pre-injection drug use exposures appear to be associated with TTII increases, but for potentially different reasons. Crack or powder cocaine use may be associated with a particular era of drug use and a historical period of lower injection popularity. Except powder cocaine, all drugs that had significant associations are not easily injected. These findings corroborate other analyses.

Financial Support: Supported by NIDA (grant # R01DA027689).

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ID: 746
Comparison of alcohol, opioid, and polysubstance-user performance on behavioral measures of impulsivity and risk taking

Randi Brown, NCIRE

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Behavior

Abstract: AIM Impulsivity and risk taking are highly associated with substance use disorders. Several computer-based tasks have emerged in addiction research as customary behavioral measures for impulsivity and risk taking: the Delayed Discounting (DD), Stop Signal (SS), Iowa Gambling Task (IGT), and Balloon Analogue Risk Task (BART). We examined the performance of three substance-using groups and a non-substance using control group on these computer-based tasks in addition to their responses on a self-report questionnaire on impulsivity, the Barratt Impulsivity Scale (BIS-11). METHODS Data was available from 79 alcohol-dependent treatment seekers (ALC), 13 alcohol and stimulant-dependent treatment seekers (PSU), 23 opiate-dependent individuals on buprenorphin maintenance therapy (OD), and 25 community-based light-drinking controls (CON). ALC and PSU participants were studied within one-month of abstinence, and OD participants before participating in smoking cessation. Not all participants completed all tasks. RESULTS The substance-using groups did not differ significantly in performance on any of the computer-based behavioral tasks; they also did not differ significantly from CON on these tasks. In contrast, groups differed in self-reported impulsivity, with CON exhibiting a significantly lower Total BIS-11 score than all three substance-using groups. The Total BIS-11 score and the motor impulsivity sub-score also indicated significantly greater impulsivity in PSU than ALC. Current cigarette smoking status (yes/no) generally did not affect the behavioral task measures. However, when pooling these data from all participants, DD k-values significantly differed between current smokers and never smokers. CONCLUSION The detection of group differences in BIS-11 scores compared to the lack of group differences for any of the behavioral tasks, suggests that these commonly used tasks may lack sensitivity to detect deficits in impulsivity and risk-taking associated with various addictions. Our results inform on the utility of these measures in moderately-sized substance-using groups, and they may encourage the use and potential development of other more sensitive assessments.

Financial Support: NIH AA010788, DA039903, DA009253

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Last Name: Brown

Degrees: MA MD Ph.D etc:: MA

Company Affiliation: NCIRE

ID: 747
Cannabis dependence: Measurement equivalence by age and sex

Christopher Thompson, Theo Pediatric Health

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Sex Differences

Abstract: Aim: Prediction of cannabis dependence (CD) in newly incident cannabis users (NICU) relies on assumptions of measurement equivalence (ME) across age and sex. Our present work reviews concepts of ME (e.g., configural, scalar) applied to CD, and initiates an investigation of ME of the CD construct. Currently we are completing a formal ME analyses for presentation at the meeting. Our focus here is on the CD facet, 'spending a lot of time, getting, using, or recovering from effects of using cannabis', a feature of 'salience'. Due to sex differences in social networks that facilitate acquiring cannabis, we hypothesized that this feature has reduced specificity in males compared to females in the 12-15-year-old age group. Methods: After sampling and recruitment, the study population samples for US National Surveys on Drug Use and Health (NSDUH), 2004-15, included >317,000 non-institutionalized civilian US residents (age 12+). Computer-assisted self-interviews identified 17,102 NICU and assessed CD experiences. For a preliminary analysis of ME in NICU, we looked for age and sex differences in the association of salience and frequency of cannabis use. We used meta-analysis to summarize estimates from annual survey replications. Results: Contrary to our expectation, the salience feature demonstrated ME by age: odds of salience based on frequency showed no significant trends as gauged by overlap of 95% confidence intervals. We also found no appreciable male-female variation in the predictive relationship ($p < 0$ .05). Conclusions: Based on a nationally representative sample of NICU, our initial analysis supports ME across age and sex of the salience feature, 'spending a lot of time, getting, using, or recovering from effects of using cannabis.' We are now completing formal assessments of configural and scalar ME by age and sex. This positions us to present more definitive evidence on ME that would clarify prediction of CD.

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ID: 748
Comparison of combustible and electronic cigarette dependence severity between heterosexual and bisexual adolescents

Madalyn Liautaud, University of Southern California

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Dependence

Abstract: AIM: Although smoking prevalence among Southern California adolescents has declined over the past two decades, there has been a notable surge in adolescent use of electronic (e-)cigarettes, both alone and in combination with combustible cigarettes. Evidence suggests that prevalence rates for use of both products is disproportionately higher among sexual minority (vs. heterosexual) adolescents, yet it remains unknown whether patterns of cigarette and e-cigarette dependence vary among adolescents by sexual identity. METHODS: Data from the Southern California Children's Health Study were used to assess the association of sexual identity (straight, bisexual, gay or lesbian, other/don't know) and risk of dependence on cigarettes or e-cigarettes. An adapted version of the Fagerström Test for Nicotine Dependence (FTND) and the Penn State E-Cigarette Dependence Index (PSEDI) were administered to 11th/12th graders who had ever used e-cigarettes (N = 707) or cigarettes (N = 500) to assess cigarette and e-cigarette dependence. Logistic regression models were used to evaluate associations of sexual identity with any dependence symptoms (yes/no) for e-cigarettes and cigarettes, in separate models. RESULTS: Overall, 12.2% of ever cigarette users reported symptoms of dependence and 7.9% of ever e-cigarette users reported any dependence. Relative to straight-identified adolescents, bisexual participants had more than twice the odds of reporting cigarette dependence (Odds Ratio [OR]=2.43; 95% Confidence Interval [CI]=1.01-5.85) and more than three times the odds of reporting e-cigarette dependence symptoms (OR=3.47; 95% CI=1.40-8.60). Elevated, but statistically non-significant, ORs were observed for other sexual minority groups for both e-cigarette and cigarette dependence. CONCLUSIONS: Bisexual adolescents are at higher risk than their heterosexual peers of developing nicotine dependence on e-cigarettes or cigarettes, with a stronger risk observed for e-cigarettes. Ongoing surveillance of e-cigarette use and dependence patterns among adolescent sexual minority users is warranted to better understand how e-cigarette use contributes to nicotine dependence in this vulnerable population.

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Company Affiliation: University of Southern California

ID: 749
The effect of Hnrnph1 deletion upon reinforcement varies as a function of the reinforcer

Karen Szumlinski, University of California Santa Barbara

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Stimulants

Topic: Behavior

Abstract: Shared genetic factors are hypothesized to mediate multiple addictions. Hnrnph1 has been validated as a quantitative trait gene for methamphetamine behavioral sensitivity. Hnrnph1 (heterogeneous nuclear ribonucleoprotein H1) codes for an RNA binding protein that is primarily localized in the nucleus and regulates alternative splicing that could dysregulate mesocroticolimbic dopamine transmission. METHODS: Herein, we examined the effects of heterozygous deletion of Hnrnph1 in partial mouse models of oral methamphetamine (MA) and opioid abuse, in comparison with that of the natural reinforcer sucrose. RESULTS: During the acquisition of MA self-administration (80 mg/L), Hnrnph1+/- females exhibited blunted responding for, and intake of, MA, while Hnrnph1+/- mice of both sexes exhibited a shift downwards in the dose-response functions for both MA-directed responding and intake (80-400 mg/L). Although no genotypic differences were observed in MA self-administration behavior when mice were trained with a higher 200 mg/L MA dose, Hnrnph1+/- mice exhibited blunted cue-induced reinstatement of MA-seeking, following extinction. While these data indicated that Hnrnph1 deletion blunts MA reinforcement, a follow-up study also revealed lower sucrose reinforcement in the mutant mice, suggesting a potential deficit in operant-learning or motivational processing. However, experimentally-naïve Hnrnph1+/- and +/+ mice exhibit equivalent acquisition of self-administration of fentanyl (3 mg/L), a potent mu opioid receptor agonist, and the dose-response function for fentanyl reinforcement and intake (0.03-3.0 mg/L) was super-imposable across the genotypes, regardless of whether or not operant learning involved prior sucrose training. CONCLUSION: Together, these negative results argue that reduced MA and sucrose reinforcement exhibited by Hnrnph1+/- mice does not reflect some general motor, learning or motivational deficit. Future work seeks to replicate present findings in the context of oral oxycodone self-administration and to relate the blunted MA and sucrose reinforcement exhibited by Hnrnph1+/- mice to dysregulated mesocorticolimbic dopamine transmission of neurobiological relevance for the etiology of both stimulant and food addictions.

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Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: University of California Santa Barbara

ID: 750
Gender differences in use, attitudes, and intention to use tobacco products

Irene Pericot-Valverde, University of Vermont

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Epidemiology

Abstract: AIMS Compared to women, men perceive cigarettes as less harmful and addictive which may have contributed to their higher rates of smoking. Tobacco products marked as having low harm or addiction potential may reduce rates of cigarette smoking, but also may encourage nicotine intake. Thus, information into the role of gender in the use of tobacco products advertised as less harmful or addictive is warranted. This study aimed at exploring gender differences in use, attitudes, and intention to use tobacco products with low harm or addiction potential. METHODS Data were collected from the Health Information National Trends Survey-Food and Drug Administration, a nationally representative survey (N= 1,676) conducted in 2017. Gender differences in use of cigarettes, e-cigarettes, cigars, and smokeless tobacco; ever use of hookah, roll your own cigarettes, and snus; perceptions of harm and addiction between products; and intention to use tobacco products advertised as having low level harm or addictive risk were examined with X2 tests. RESULTS Compared to women, men were more likely to be current users of cigarettes ($p = .000$), smokeless tobacco ($p = .000$), and having tried snus ($p = .000$), or roll your own ($p = .014$). Among never users, men compared to women were more likely to report a lower perception of harm and addictiveness. Men who were former smokers were also more likely to report that they would use a tobacco product if it was less harmful ($p = .024$) or addictive ($p = .033$). CONCLUSIONS Gender differences in use, attitudes, and intention to use tobacco products were found. Attitudes towards tobacco products may leave men more vulnerable to tobacco use. Prevention campaigns that accurately report the potential harm and addictiveness of tobacco products while also emphasizing the negative effects of all types of tobacco products are urgently needed.

Financial Support: This project was supported by Tobacco Centers of Regulatory Science award P50DA036114 from the National Institute on Drug Abuse (NIDA) and Food and Drug Administration (FDA), and Center of Biomedical Research Excellence award P20GM103644 from the National Institute of General Medical Sciences (NIGMS). The content is solely the responsibility of the authors and does not necessarily represent the official views of NIDA, FDA, or NIGMS.

First Name: Irene

Last Name: Pericot-Valverde

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Company Affiliation: University of Vermont

ID: 753
Naltrexone reduces striatal resting state functional connectivity in people with methamphetamine use disorder

Philip Todd Korthuis, Oregon Health & Science University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Stimulants

Topic: Imaging

Abstract: Aim: People who use methamphetamines (MA) exhibit greater striatal resting-state functional connectivity (RSFC). In patients with alcohol use disorder, RSFC is associated with craving and outcomes. Naltrexone blocks mu opioid receptors in the reward pathway and may reduce MA craving, but its effect on RSFC is unknown. We examined whether naltrexone can improve functional connectivity among regions of the mesolimbic system. Methods: Thirty-seven participants with MA use disorder underwent resting-state magnetic resonance imaging (MRI), followed by randomization to a single injection of extended-release naltrexone lasting 4 weeks (n=18) or placebo injection (n=19). Study measures were repeated 3 weeks following injection. Standard image preprocessing was performed, including motion correction, spatial smoothing, highpass filtering, and registration. The mean time series across all voxels of the ventral striatum was used as a covariate in separate whole-brain voxel-wise correlation analyses. Signal from cerebrospinal fluid and white-matter, along with two metrics of motion-related artifact, were entered as nuisance covariates. Time and treatment interactions were modeled with whole-brain-corrected repeated measures analysis. Results: Of 37 participants, 28 were male, 9 were HIV-infected, mean age was 37.49 (SD 9.74) years, and mean education was 12.79 (SD 1.57) years. Resting-state MRI a significant treatment-by-time interaction on RSFC between the ventral striatum, amygdala, hippocampus and midbrain. Connectivity was significantly reduced over time in participants randomized to naltrexone but unchanged in those randomized to placebo ($p < 0$ .05, whole-brain corrected). Conclusion: Neurobiological deficits associated with MA use may undermine the efficacy of pharmacotherapies that directly target the dopamine reward system. Naltrexone indirectly affects the dopamine system through antagonizing opioid receptors and may regulate reward system signaling in people with MA use disorder.

Financial Support: R21DA033182, P50DA018165 07, UG1DA015815, T32DA007262, T32AA007468

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Degrees: MA MD Ph.D etc:: MD, MPH

Company Affiliation: Oregon Health & Science University

ID: 754
A model to integrate tobacco-free workplace programs into substance use treatment centers

Virmarie Correa-Fernandez, University of Houston

Abstract Category: Program Descriptions

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Policy

Abstract: Background: Tobacco use has declined among the general population, but remains high among individuals in substance use disorder (SUD) treatment. Approximately 60-87% of non-nicotine SUD patients are smokers, and smoking rates are two to four times higher among individuals with a SUD than those without a SUD. High mortality rates among individuals with SUDs are attributed to tobacco-related diseases rather than the SUD. Few Substance Use Treatment Centers (SUTC) incorporate evidence-based cessation services into SUD treatment; fewer than 10% have banned tobacco use on their grounds. Aim: Taking Texas Tobacco Free (TTTF), a multi-level and multi-component tobacco-free workplace (TFW) program, partners with SUTC across Texas to increase tobacco cessation among patients and staff. TTTF has been implemented with behavioral health centers previously; it was effective in increasing implementation of TFW as well as evidence-based cessation services. Now, we adapt and scale-up TTTF for implementation in dedicated SUTC. Program Description: TTTF requires TFW policy implementation and enforcement (organization-level); non-contact employee and provider education about tobacco use hazards (employee-level & provider-level); specialized provider training to screen for and address tobacco dependence (provider-level); and community outreach to address tobacco use broadly (community-level). Using a mixed-methods approach, a formative evaluation process is used to understand clinic-specific implementation assets and potential barriers, which guide the implementation strategies. Consultation, practical guidance, and treatment resources (e.g., nicotine replacement therapies) are provided at all levels. Mechanisms for program sustainability are emphasized. Conclusion and Future Directions: Over the next 3 years, TTTF will be implemented in SUTC across Texas to reduce tobacco use among individuals with non-nicotine SUD and their care providers. Program evaluation will include attention to moderators and mediators of successful implementation at all levels, with strategy adjustments made in real-time during an ongoing roll-out. Cutting-edge implementation science will guide the measurement, evaluation, and reporting of outcomes.

Financial Support: Supported by: The Cancer Prevention & Research Institute of Texas (PP170070, PI: Reitzel)

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Degrees: MA MD Ph.D etc:: Ph.D., CTTS

Company Affiliation: University of Houston

ID: 755
Identifying predictors of high blood alcohol concentration (BAC) among those in a DUI program

Natasia Courchesne, University of California San Diego

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Alcohol

Topic: Dependence

Abstract: Aims: Driving under the influence (DUI) of alcohol can have serious adverse consequences. Understanding factors correlated with blood alcohol concentration (BAC) at time of arrest may lead to tailored rehabilitation programs designed to fit the needs of those with high levels of intoxication. The current study aims to describe correlations between BAC at time of arrest and sociodemographic, mental and physical health, and alcohol-related characteristics among clients in a Southern California DUI Program. Methods: Client reported data (n=17,282) were collected at intake into the DUI program from 2009 to 2014. Bivariate associations between BAC and the predictor variables, effect size analysis, and multiple linear regression were used to investigate associations with BAC. Complete data from 15,005 clients were used in the final model. Results: BAC ranged from .083% to .390%, with an average of .159 (SD=.051), almost twice the legal limit. Approximately 10.6% of the variance in BAC was explained by 11 significant variables remaining in the final model. Age, race/ethnicity, heavy episodic drinking, blackouts, prior DUI, and high scores on self-reported standardized screening tools indicating a possible alcohol use disorder were among the variables independently associated with higher levels of BAC. Conclusion: Factors associated with BAC at time of arrest for a DUI are complex and warrant further investigation to identify causality and inform future interventions. Medical and psychological evaluation to rule in/out an alcohol use disorder, identifying a need for medication assisted treatment, and enhanced case management for those with high BACs at time of arrest is needed.

Financial Support: Unfunded

First Name: Natasia

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ID: 756
Implementation of a substance use-focused ambulatory "ICU" for primary care: the The streamlined unified meaningfully managed interdisciplinary team (SUMMIT)

Brian Chan, Oregon Health & Science University

Abstract Category: Program Descriptions

Abstract Detail: Human

Drug Category: Polydrug

Topic: Treatment

Abstract: Aim: Persons with substance use disorders (SUD) and chronic medical conditions often experience increased acute medical care utilization and decreased SUD treatment engagement due to fragmented care. We describe SUMMIT (Streamlined Unified Meaningfully Managed Interdisciplinary Team), an interdisciplinary ambulatory intensive care unit (A-ICU) providing integrated medical and SUD care. Methods: The program setting is a Federally Qualified Health Center in Portland, Oregon serving a high proportion of patients with SUD. Primary care providers transfer patients to the SUMMIT team who have >1 hospitalization over the past 6 months, >1 medical co-morbidity (diabetes, heart failure, COPD, liver disease, soft-tissue infection), and SUD or mental health diagnosis. The SUMMIT team consists of addiction medicine physicians who prescribe buprenorphine, complex care nurse, care coordinators, behavioral health counselors, pharmacist and team manager. The team has a reduced panel size, flexible scheduling, and outreach capability with emphasis on motivational interviewing and relationship building to facilitate retention and treatment of both complex medical conditions and SUD. Preliminary Results: Of the first 104 patients enrolled (mean 53.9 years, SD 10.3), 33.7% percent were female, 70.2% White, 16.4% African-American, and 15.4% Latino and 44.2% with past year homelessness. At baseline, 83.7% of patients had a history of SUD, and 42.3% active SUD (13.5% AUDIT > 15; 33.7% DAST >2). Participants averaged 2.6 hospitalizations, 5.0 ED visits in the 6 months prior to enrollment. Participants with active SUD were more likely to report moderate depression (PHQ-9 > 9 68.2% vs 38.3% p
Financial Support: Funding: K12HS022981, UG1DA015815

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Degrees: MA MD Ph.D etc:: MD MPH

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ID: 758
Linking DSM-V alcohol-use disorders with policy-relevant correlates in young adults: Implications for an evidence-informed national alcohol harm reduction policy

Sirine Anouti, American University of Beirut

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Alcohol

Topic: Epidemiology

Abstract: A total of 1155 university students from 8 private and public universities from Lebanon participated in a survey in May 2016 aimed at understanding the association between policy-relevant factors and alcohol consumption. Among past-year drinkers (n=582), 15% were screened with DSM-V moderate to severe alcohol-related problems. Compared to drinkers with no AUD, they were also more likely to purchase their alcohol beverages mostly from pubs/bars [OR=2.43 (1.16, 5.08)] and to recall seeing alcohol ads worn by sports players [OR=2.8 (1.70, 4.61)]. Drinkers with moderate/severe alcohol problems (versus no AUD) also believe that earlier closing times for pubs/bars [OR=2.23 (1.48 -3.35)], banning all forms of alcohol marketing [OR=1.8 (1.00, 3.24)], pricing promotions [OR=2.21 (1.33, 3.65)], as well as enforcing a minimum BAC [OR=2.11 (1.07, 4.13)] would decrease their alcohol consumption levels, all probable points of entry for a national alcohol harm reduction policy, also supported by additional data including: (1) 40% of past-year drinkers reported drive through drinking stores that sell cheap low quality alcohol as their source of alcohol, in addition to music concerts/other events; (2) only 8% of past year drinkers (who reported drink-driving) were pulled over for a breath test; (3) 98% reported an alcohol outlet near school/home, 88% perceived alcohol as easily accessible, 92% had never been asked for ID when purchasing alcohol, and less than 1% have been refused alcohol after they have had too much to drink; (4) and lastly, students choice of alcoholic drink as well as brand most recalled matched the alcohol brands most advertised. In the absence of specialized care for people with alcohol-problems, coupled with an alcogenic environment characterized by cheap, widely available and heavily advertised alcoholic beverages, Lebanon is one of many countries that must strengthen their national response via a contextualized evidence-based alcohol harm reduction policy.

Financial Support: International Development Research Center (IDRC) CANADA

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ID: 759
Sex differences in oxycodone preference choice task

Julian Gerson, University of California Santa Barbara

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Opiates/Opioids

Topic: Sex Differences

Abstract: Aim Due to the continuing rise in opioid addiction, it is critical to discover the underlying factors that play a role in drug abuse. Sex differences are a relatively new focus of study in the field of opioid addiction and it is essential to add to this growing body of research. Methods To add to the growing body of research on the role of sex in addiction vulnerability, we examined differences in oxycodone (0.03 mg/kg/infusion, IV) and food (45 mg banana pellets) reinforcement between male (n=7) and female (n=8) Sprague Dawley, rats. Each rat was implanted with a jugular catheter before undergoing behavioral testing using a two-lever operant chamber model of drug self-administration. Rats underwent both single-reinforcer progressive ratio sessions for both oxycodone and food separately, followed by discrete choice sessions where both reinforcers were concurrently available. Results During choice sessions, males and females selected food more frequently than oxycodone, showing a significant preference for food over oxycodone ($F(3,26)=24.35$, $p < 0 .0001$). There were no significant differences in food vs. oxycodone preferences between sexes when both oxycodone and food were concurrently available. Furthermore no rats showed a preference for oxycodone (selecting drug on over 50% of trials). In contrast, when only oxycodone was available under progressive ratio, female subjects displayed significantly higher breakpoints for oxycodone than males ($U=8.0$, $p < 0 .05$). Conclusions These results indicate females exhibit higher motivation for oxycodone than their male counterparts but, at this dose, there are no sex differences in the choice model of addiction. These results are in agreement with previous work which demonstrated a higher breakpoint for female rats self-administering heroin and morphine on a PR schedule (Cicero et al., 2003) as well as with female rodents showing a greater propensity to display higher intake, seeking, and reinstatement for drug reinforcement (Becker & Koob, 2016).

Financial Support: N/A

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ID: 760
Building health homes for clients in treatment for substance use disorders

Elizabeth Waddell , Oregon Health & Science University

Abstract Category: Program Descriptions

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Treatment

Abstract: AIM: The Oregon Health Authority launched the Behavioral Health Home Learning Collaborative (BHHLC) to support behavioral health sites working to increase access to primary health care among Medicaid clients with serious mental illness or substance use disorders (SUD). This program description identifies clinical and operational barriers to developing integrated addictions, mental health and physical health care for adults in treatment for substance use disorders. METHODS: BHHLC supported 13 sites (June 2014 through December 2016). Two were residential treatment facilities for substance use and co-occurring disorders, and two were buprenorphine treatment programs in Federally Qualified Health Centers. Intensive, individualized practice coaching helped participating sites design and implement one of three integration models: in-house, co-location, or referral. Other activities included in-person learning sessions for clinicians, staff, and leadership. Data collection assessed integration progress and included qualitative interviews and pre- and post- administrations of the Behavioral Health Integration Capacity Assessment. RESULTS: A majority of clients entering care in BHHs in addictions settings did not arrive with medical histories, and primary care providers were frequently diagnosing chronic conditions (e.g., diabetes and hypertension). Bridging addictions, mental health and primary care posed consistent barriers to coordination of professional services, standardized record-keeping, and team-based care, even when clinical services were under one roof. CONCLUSION: There was a remarkable consensus on the core features of a BHH for SUD clients, as well as challenges to effective implementation. Four recommendations were made: 1) cross train BHH staff to bridge professional cultures and develop an integrated workforce; 2) adjust scheduling to accommodate complex clients; 3) standardize client release of information protocols to share records across primary care, addictions and mental health providers; and 4) create and sustain interdisciplinary quality improvement teams with balanced representation from behavioral health, primary care, and site administration.

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Company Affiliation: Oregon Health & Science University

ID: 761
MDMA use disorder and other substance use among international MDMA users

Nancy Haug, Palo Alto University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Club/Designer Drugs

Topic: Dependence

Abstract: AIM: MDMA is a widely misused substance frequently taken in combination with other drugs, causing serious health risks. Recreational MDMA use presents differently from many other misused substances, creating a challenge for the assessment of problematic MDMA use. The current study sought to determine the prevalence of MDMA Use Disorder and concurrent substance use among international MDMA users. METHODS: We recruited participants from several harm reduction websites and electronic music events to give informed consent and complete an online survey consisting of items on MDMA use, polydrug use, and the UNCOPE DSM-5 screener (Proctor & Hoffman, 2016). RESULTS: The adult sample (N = 1,732) was 87% white, 81% male, 42% college educated, 72% employed, with a mean age of 25.7 (SD=8.3). Participants were geographically diverse: United States (US; 45%), European Union (EU; 32%); Canada (8%); Australia (5%); and other (10%). Substance co-administration included: 78% cannabis; 64% nicotine or tobacco; 63% alcohol; 51% hallucinogens; 38% caffeine or energy drinks; 26% cocaine; 23% methamphetamine; 20% benzodiazepines; 19% ketamine; 18% research chemicals; and 12% opioids. Individuals with MDMA Use Disorder (22%) reported significantly higher use of several substances including cannabis, alcohol and nicotine compared to those without the diagnosis (all p's CONCLUSION: Corresponding to literature on age and addiction, younger users may be more at risk for MDMA Use Disorder than older users. Many MDMA users report using other substances while using MDMA, contributing to their risk profile. Cultural factors related to MDMA use patterns, motives for use, risk behaviors and consequences of use will be explored.

Financial Support: N/A

First Name: Nancy

Last Name: Haug

Degrees: MA MD Ph.D etc:: Ph.D.

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ID: 762
Military veterans' overdose risk: Demographic and biopsychosocial influences

Alexander Bennett, National Development and Research Institute, Inc.

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: Aim: To examine the associations of demographic and biopsychosocial factors with opioid-related overdose risk behaviors in a sample of 225 opioid-using veterans residing in New York City. Methods: Participants completed a baseline assessment and a validated 22-item Opioid Risk Behavior Scale (ORBS) that measured past-30-day engagement in behaviors known to be risky for opioid-related overdose. For this analysis, all ORBS items were coded as binary variables (0=behavior not reported, 1=behavior reported on at least one day of the month) and summed. The resulting ORBS score described the number overdose risk behaviors participants reported over the previous thirty-day period. Beta-binomial regression, with a Benjamini-Hochberg correction for multiple tests, was used to compute unstandardized odds ratios and associated 95% confidence intervals for the associations of ORBS score with 20 hypothesized demographic, physical and mental health predictors. Results: Participants reported an average of 5.51 overdose risk behaviors in the last 30 days (μ=5.51, σ=4.48). Mental health symptoms, average pain in the last month, alcohol use disorder (AUD) symptoms, and being single were significantly associated with higher ORBS score ($p < 0$ .05). Participants who reported experiencing serious mental or physical health problems post-military service reported 1.5 times as many overdose risk behaviors as those who did not, holding other predictors constant. There was a significant interaction between AUD symptoms and average pain in the last month, such that those reporting higher than average pain and more than average AUD symptoms reported more risk behaviors. Conclusion: U.S. military veterans face myriad physical, psychological and social challenges that may elevate risk for opioid-related overdose. While proximal overdose risks are well understood (e.g. polysubstance use, changes in tolerance, fentanyl-cut heroin), our findings suggest that more distal influences, including mental health, pain, alcohol use and relationship status, need to be considered when tailoring and delivering overdose prevention interventions.

Financial Support: This study was funded by National Institute on Drug Abuse Grant #R01DA036754

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Last Name: Bennett

Company Affiliation: National Development and Research Institute, Inc.

ID: 763
Opioid tapering and discontinuation patterns in a large Colorado health system: 2012-2016

Ingrid Binswanger, Kaiser Permanente Colorado

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: Aim: Opioid prescribing guidelines recommend tapering opioids for chronic pain if the benefits outweigh the risks. There is little consensus on how to reduce or discontinue opioids to reduce overdose risk. Large electronic health record databases represent a potentially powerful resource to study the safety and effectiveness of different tapering practices. To conduct such studies, the various patterns of opioid tapering/discontinuation in routine clinical care need to be quantified and characterized. Methods: We conducted a retrospective cohort study of Kaiser Permanente Colorado patients with ≥3 opioid prescriptions in a 90-day period and 12 months of follow-up between 2012-2016. Daily morphine equivalent dose (MED) was calculated at baseline and for each 30-day interval. We focused analyses on patients receiving high-dose opioids (≥90 MED/day) due to their high risk. We first divided patients into the following groups based on MED changes of ≥20% from baseline to 12 months: dose increase, stable, or decrease/discontinuation. Within each group, we calculated interval-specific changes from baseline to examine the dose trajectory for each patient. Interval-specific dose changes were also categorized as increase, stable, or decrease/discontinuation. Results: Among 6,106 eligible patients, 854 (14.0%) were on high-dose opioids. Of these 854 patients, 146 (17.1%) increased, 381 (44.6%) remained stable, and 327 (38.3%) decreased/discontinued from baseline to 12 months. Among the 327 patients, there were 3,597 total intervals with the following distribution: 218 (6.1%) increase, 1070 (29.8%) stable, and 2309 (64.2%) decrease/discontinuation. Among patients who decreased/discontinued (n=327), 222 (67.9%) experienced consistent dose decreases or dose stability across the intervals. For the remaining 105 (32.1%) patients, interval-specific doses fluctuated. Conclusions: Tapering practices in this large health system demonstrated considerable variability. Additional research is needed to determine if specific tapering practices are associated with important effectiveness and safety outcomes, such as heroin use, overdose, pain, and quality of life.

Financial Support: This work is supported by a grant (R56 1R56DA044302) through the National Institute of Drug Abuse, National Institutes of Health.

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ID: 764
Buprenorphine/naloxone treatment: Dose-finding for prescription opioid dependence

Gabriela Garcia Vassallo, Yale University School of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Dependence

Abstract: BACKGROUND: The optimal dose of buprenorphine/naloxone for maintenance of individuals with prescription opioid dependence (POD) has not been determined. While some evidence suggest higher doses are better (>24mg) among those with heroin dependence, lower doses, if effective in preventing relapse in POD, have an advantage as they may be associated with fewer side effects and lower rates of diversion. Dropouts due to withdrawal symptoms and cravings may also be prevented and would enhance retention. AIM: This pilot randomized trial evaluated low vs. high buprenorphine/naloxone dose among prescription opioid dependent individuals; main outcomes were opioid use, retention and use of other drugs of abuse. METHODS: Individuals with opioid use disorder, who were addicted to prescription opioids and entering maintenance therapy with buprenorphine were randomly assigned in an open fashion to 8mg or 16mg of buprenorphine/naloxone for 12 weeks (n=9). Subjects in the low dose arm received no more than 8mg; high dose subjects received no less than 16mg. Four subjects were assigned to high dose and five were assigned to low dose. Subjects were evaluated weekly for drug use, mood symptoms, craving and measurements of pain. RESULTS: One subject in the low dose arm dropped out after week ten. All other subjects completed the study. There was no return to opiate use in either arm. Average dose among the group assigned to the low dose was 7mg; the average dose of those assigned to high dose was 16mg. CONCLUSIONS: While the sample size is small, data from this pilot study data suggests that 8mg of buprenorphine may be an adequate maintenance dose for people transitioning from prescription opiates to Buprenorphine/Naloxone. Assessment of mood symptoms, craving and pain scores were also evaluated and will be presented. These data suggest that a larger clinical trial evaluating dose is warranted.

Financial Support: Supported by NIH/NIDA, R25DA033211 Research in Addiction Medicine Scholars (RAMS) Program and MIRECCVA Connecticut Healthcare System

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Degrees: MA MD Ph.D etc:: MD

Company Affiliation: Yale University School of Medicine

ID: 765
The impact of psychological distress on pain volatility in adults with chronic pain and prescription opioid addiction

Bryan Messina, VA San Diego Healthcare System

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: AIMS Prescription opioid misuse and abuse are major public health concerns. Adults with chronic pain have heightened risk for prescription opioid addiction and high rates of relapse during treatment. Prior findings linking pain volatility to relapse has helped understand these poor treatment outcomes. Various forms of psychological distress have also predicted opioid initiation, continuation, and problematic use, and are also associated with chronic pain. The current study examined if baseline measures of trauma exposure and depression would predict pain volatility in chronic pain patients receiving treatment for prescription opioid addiction. METHODS Secondary data analysis was conducted on 149 adults with chronic pain from an outpatient, multi-site clinical trial of medication and counseling for 12 weeks. Pain volatility was derived from multilevel models of weekly pain scores. Predictors were baseline measures of depression severity and lifetime variety of trauma exposure. Relations between these predictors and pain volatility were examined with Pearson correlations and regression models. RESULTS Correlations with pain volatility were significant for depression severity ($r = .31$; $p < .001$) and trauma exposure ($r = .19$; $p = .01$). In a multiple regression model both depression severity ($\beta = .28$, $t(142) = 3.92$, $p < .001$) and trauma exposure ($\beta = .19$, $t(142) = 2.53$, $p < .001$) significantly predicted pain volatility ($R2 = 12.17\%$). CONCLUSION Baseline psychological distress predicted pain volatility during 12 weeks of medication and counseling for prescription opioid addiction. Because pain volatility has predicted treatment failure in this sample, chronic pain patients with more severe depression and/or trauma exposure are at risk for poor treatment outcomes. Future work should examine if treatment of baseline distress can impact rates of relapse to optimize intervention efficacy.

Financial Support: NIDA K23DA039348

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Company Affiliation: VA San Diego Healthcare System

ID: 766
Oxycodone self-administration is altered by microbiome modulation in Copenhagen rats

Sierra Simpson, The Scripps Research Institute

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Opiates/Opioids

Topic: Neurobiology

Abstract: AIM More than 2 million Americans suffer from substance use disorders that are related to prescription opioid pain relievers, such as oxycodone, and half a million are addicted to heroin. The cellular mechanisms that are involved in the analgesic and reinforcing effects of oxycodone, including μ-opioid receptor activation, are relatively well known, but the mechanisms that are responsible for the vulnerability or resistance to the escalation of oxycodone use remain elusive. Increasing evidence suggests that the gut-brain axis may play a role in altering behavioral and neurological functions, and chronic opioid use may alter gut microbiota. We investigated whether the disruption of a healthy microbiome alters the escalation of oxycodone self-administration in adult Copenhagen rats. Methods: The animals were trained to self-administer oxycodone (150 mg/kg/inf) in 12 h sessions. After baseline was reached, the rats (n = 14) were given a cocktail of antibiotics for 10 days to deplete their microbiome. After depletion, the animals were given a cocktail of short-chain fatty acids (SCFAs) in tandem with antibiotic treatment to mimic an intact, healthy microbiome. Results/Conclusion A significant increase in oxycodone self-administration was observed during antibiotic treatment, and this escalation of intake was reversed by SCFA administration. These results demonstrate that oxycodone self-administration increases after the gut microbiome composition is altered in Copenhagen rats, suggesting a direct influence of the gut-brain axis on drug intake. Potential insights into the molecular mechanisms and repurposing of small molecules to mimic the effects of SCFAs may reveal new treatment strategies to limit the vulnerability to escalated opioid intake.

Financial Support: NIH Grant AA006420, The Pearson Center for Alcoholism and Addiction Research

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Last Name: Simpson

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Company Affiliation: The Scripps Research Institute

ID: 767
Associations between perceived stress and poor everyday functioning in methamphetamine (METH) dependence and/or HIV infection

Mariam Hussain, University of California San Diego

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Stimulants

Topic: Other

Abstract: AIM: Methamphetamine (METH) use and HIV-infection (HIV) often co-occur and are independently associated with higher perceived stress, which can adversely impact everyday functioning outcomes. This study sought to determine the impact of METH and HIV in combination on perceived stress, with the hypothesis that the dual risk factors would confer even greater risk for perceived stress, which would be associated with significant adverse functional consequences. METHODS: Participants included 270 individuals stratified by methamphetamine (METH) dependence (M+ or M-) and HIV serostatus (H+ or H-) into four study groups: H-M- (n=57), H-M+ (n=27), H+M- (n=110) and H+M+ (n=76). Each participant completed the Perceived Stress Scale of the NIH Toolbox-Emotions Module alongside a comprehensive neurobehavioral and neuromedical evaluation. Data were analyzed using standard statistical analyses, including analyses of variance, correlation coefficients, and multivariable regression. RESULTS: Both METH and HIV were significant independent predictors of higher perceived stress ratings, even when controlling for important demographic characteristics (e.g., age) and common medical and psychiatric comorbidities (e.g., hepatitis C virus, mood disorders). Specifically, all risk groups reported significantly higher perceived stress relative to controls (H-M-; ps CONCLUSION: These findings provide preliminary evidence that METH and HIV in combination may confer even greater risk for perceived stress than either risk factor alone. Perceived stress may be an important target for intervention approaches to improve everyday functioning in these vulnerable populations.

Financial Support: National Institute of Health grants T32-DA031098, P50-DA026306, R25-MH081482, K23-DA037793, and P30-MH62512.

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Degrees: MA MD Ph.D etc:: BS

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ID: 769
Global review of drug checking services 2017

Larissa Maier, University of California San Francisco

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Club/Designer Drugs

Topic: Prevention

Abstract: Aim: The unknown content and purity of illicit drugs pose a major risk to health. Drug checking services invite members of the public to anonymously submit drug samples for forensic analysis to support informed decisions on drug use. The aim of this study was to examine the features of all drug checking services operating in 2017 worldwide. Methods: The services were sampled via personal networks and regional harm reduction agencies. A semi-quantitative questionnaire was sent to all 33 active services. Measures included the technologies used, setting, process, scale and length of operation, funding models, and comments on its history and challenges to operation. Results: In total, representatives from 31 services in 20 countries on 4 continents (23 in Europe, 3 in North America, 3 in South America, 2 in Australia) completed the survey. The services were running for 11 years on average; the first project began operation 25 years ago in the Netherlands. The most common settings of operation were on-site at festivals/clubs (55%) and fixed-site integrated to local public health services (42%). Two services required postal submission of drug samples. The main drug samples submitted are MDMA and stimulants and to a lesser extent, hallucinogens and new psychoactive substances. Half of the services reported at least one mass spectrometry or liquid chromatography method (GC-MS, LC-MS, HPLC, UHPLC, IT-MS). A third reported at least one spectroscopy method (FTIR, UV-Vis, Raman). Half of the services reported the least discriminatory, cheaper TLC and reagent testing. Results are usually communicated after 15-29 minutes on-site, combined with brief counseling. Conclusion: This is the first global review of all active drug checking services. Only half of the services operating use high-resolution technology that allows analyzing both the content and purity of drug samples to effectively prevent harm from overdose and unintended concurrent use of other drugs.

Financial Support: No funding was provided.

First Name: Larissa

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Degrees: MA MD Ph.D etc:: Ph.D.

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ID: 770
Birth control knowledge and interest in reproductive health services in patients receiving treatment for opioid use disorder

Laura Lander, West Virginia University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Sex Differences

Abstract: Abstract background: Rural America is amid an opioid epidemic (CDC, 2016). Treatment for opioid use disorder has expanded, but there are still many gaps such as integration of reproductive health services. Methods: Participants enrolled in a rural opioid treatment clinic (n = 213; 72% female; M+SD= 33.3+8.2 yr. old; 91.7% Caucasian) were administered a computer based survey on sexual health. Questions included: interest in attending a reproductive health clinic the same day as their current appointment (5-point Likert scale; “definitely would” to “definitely wouldn’t”); current sexual activity (yes/no); birth control technique knowledge (summed yes/no list of 12 birth control methods learned about from a health professional); travel time to the clinic (minutes); difficulty accessing birth control (yes/no). Results: Interest in same-day sexual health services was high with 45.5% endorsing they or “definitely” or “probably would” use the services and only 6.6% replied that they “definitely wouldn’t”. Current sexual activity (p
Financial Support: Research reported in this publication was supported by the National Institute of General Medical Sciences of the National Institutes of Health under Award Number 2U54GM104942-02.

First Name: Laura

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Company Affiliation: West Virginia University

ID: 771
Sex differences in risk factors for opioid overdose

Munachimso Amadife, Columbia University and NYSPI

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Sex Differences

Abstract: Aim: Over the past several years, opioid overdoses have increased significantly in the United States. The likelihood of overdose is influenced by a number of risk factors including severity of addiction, route of drug administration, and polysubstance use. The primary aim of the present study was to identify potential sex differences in the risk factors associated with opioid overdose. We hypothesized that men would have a greater number of risk factors associated with overdose compared to women. Methods: A total of 221 male and 70 female current and former heroin users (n=291) were interviewed using a variety of structured questionnaires, including the Addiction Severity Index (ASI). Results: ASI Drug Use Composite scores were similar between the sexes (men=0.23, women=0.26, p=NS). Concerning overdose risk factors, 28% of men and 35% of women reported regular IV opioid use (p=NS). Men were more likely to primarily use heroin alone but this difference was not statistically significant (45.8% vs. 33.0%; p=NS); however, recent polysubstance use was significantly more common among women (p=0.003). Self-reported overdose was common in both groups, with 31.4% of men and 40.0% of women reporting having experienced an opioid overdose event (p=0.15). Men reported having experienced an average of 2.1 past OD events, while women reported 2.7 events (p=0.03). Seventy-nine percent of men reported witnessing an OD event, in comparison to 65.5% of women (p=0.04). Men reported having witnessed an average of 5.8 OD events, while women reported 4.0 events (p=NS). Conclusion: Although several risk factors for OD were similar between men and women, including addiction severity and IV opioid use, women reported experiencing more OD events, which may have been due to their greater likelihood of using multiple substances. These results suggest that intervention efforts should be directed toward addressing polysubstance use among women. This study was supported by R01DA035207.

Financial Support: R01DA035207

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Degrees: MA MD Ph.D etc:: Medical Student

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ID: 772
Diverging trends in cannabis and cigarette use among youth with depression in the United States, 2002-2016

Renee Goodwin, The City University of New York and Columbia University

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Epidemiology

Abstract: Background: Recent increases in cannabis use among young persons who smoke cigarettes in the United States have been documented. Both cannabis and cigarette use are linked with depression. The goal of the current study was to investigate the relationship between depression and cigarette use only (i.e., among those with no cannabis use), cannabis use only (i.e., among those with no cigarette use), and use of both cannabis and cigarettes in 2016. Further, the study examined trends in cigarette use only, cannabis use only, and use of both cannabis and cigarettes from 2002 to 2016 among youth ages 12-17, and whether these trends were modified by depression. Methods: Data were drawn from the 2002-2016 National Survey on Drug Use and Health, a nationally representative, annual, cross-sectional sample of individuals ages 12 and older in the US. Results: From 2002 to 2016, among 12-17 year olds, the prevalence of cigarette use only decreased significantly (3.3% to 0.7%; $p < 0.001$), the prevalence of cannabis use only increased significantly (4.5% to 5.9%, $p < 0.0001$), and the use of both cigarettes and cannabis declined (3.0% to 0.8%, $p < 0.001$). There was a significant 2-way interaction between cannabis use only and depression. The prevalence of cannabis use only increased from 8.2% to 11.7% ($p < 0.0001$) among youth with depression and from 4.2% to 4.7% ($p < 0.0001$) among youth without depression. The rate of increase in cannabis use over time was significantly faster among youth with depression than youth without. Conclusion: Cannabis use is increasing among youth while, cigarette use and use of both cannabis and cigarettes are decreasing. Cannabis use is increasingly significantly more rapidly among youth with depression compared to without and cannabis use twice as common among youth with depression than those without in 2016. The increase in cannabis use among youth is disproportionately concentrated among those with depression.

Financial Support: This work was supported by NIH/NIDA grant DA20892.

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Last Name: Goodwin

Degrees: MA MD Ph.D etc:: Ph.D., M.P.H.

Company Affiliation: The City University of New York and Columbia University

ID: 773
Is risk-targeted, coping skills enhanced motivational interviewing (MI) more efficacious than MI alone in young people with alcohol related-injuries accessing emergency department and crisis support care?

Leanne Hides, University of Queensland, Centre for Youth Substance Abuse Research

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Alcohol

Topic: Treatment

Abstract: AIM There is a growing evidence base for brief interventions (BI) for alcohol use in young people. However, it is unclear which type of BI is most effective and there is significant scope to increase their impact. This randomized controlled trial determines if risk targeted motivational interviewing (MI) enhanced with coping skills training is more efficacious than MI alone or an assessment feedback/information (AFI) only control. METHODS Participants were 394 young people (16-25 years) accessing an emergency department or crisis support service with an alcohol related injury/illness. Young people were randomized to receive (i) 2 sessions of MI; (ii) 2 sessions of a risk-targeted, coping skills enhanced MI (MIC) or (iii) a 1-session AFI. All interventions were delivered post discharge via telephone. Participants were assessed at baseline, 1, 3, 6 and 12 months on the primary outcomes of alcohol use and related problems and secondary outcomes of psychological distress, functioning, severity of problematic alcohol use, alcohol injuries, coping skills and coping self-efficacy to resist using alcohol. RESULTS Participants (56% Female; Mage = 20.3 years) were drinking on a mean of 1.4 days (SD=1.5) per week at baseline, and consuming 10.7 (SD=7.2) drinks per drinking occasion. Participants were followed up at 1, 3, 6 and 12 months (80% retention). Mixed effects model repeated measures analyses of variance were conducted. All groups achieved significant reductions in the frequency, quantity (standard drink units (SDU) and SDU/drinking day and alcohol-related problems. Reductions in alcohol use were significantly larger in the risk-targeted MIC group than the MI and AF groups. CONCLUSION Telephone-delivered BIs provide a youth-friendly, accessible and easily disseminated treatment for young alcohol users presenting to crisis support care. All three types of BIs brief interventions resulted in reductions in alcohol use and related harm in young people, but the risk-targeted MIC had the strongest effects.

Financial Support: Leanne Hides is supported by an National Health and Medical Research Council (NHMRC) Senior Research Fellowship and the study was funded by an NHMRC project grant.

First Name: Leanne

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Degrees: MA MD Ph.D etc:: PhD(Clin)

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ID: 774
A retrospective case series of a hospital-based managed alcohol program in Vancouver, Canada

Christopher Fairgrieve, St. Paul's Hospital

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Alcohol

Topic: Treatment

Abstract: Aim: Managed Alcohol Programs (MAPs) involve the supervised provision of alcohol, typically one standard drink per hour, as a harm reduction measure for individuals with a severe alcohol use disorder unresponsive to conventional treatments. Pilot studies of community-based MAPs have demonstrated a reduction in quantity of alcohol use and other associated harms; MAP for hospitalized patients is novel. We describe participants in a Canadian hospital-based MAP as well as indications for treatment and outcomes. Methods: A retrospective chart review of hospital-based MAP participants from 7/16–10/17 reviewed demographics, alcohol history, rationale for initiation of MAP, course in hospital, liver function tests (before and after MAP in hospital), and adverse events. Results: Hospital MAP patients (n=17) from a single hospital were 70.6% male with median age 53 years (range 41-64). Average alcohol consumption prior to admission was 12.4±7.7 standard drinks per day. Most frequent indications for hospital MAP were continuation of community MAP (35.3%), perceived high risk of leaving hospital against medical advice (29.4%), and illicit alcohol use in hospital (29.4%). Median duration of hospitalization was 29.6±24.0 days; 82.4% completed the treatment requiring admission to hospital. Median alcohol provision was 8.0 standard drinks per day. Median AST, ALT and bilirubin decreased by 28.6%, 15.2% and 50.2% after MAP initiation, respectively, while GGT increased by 4.9%. Reported adverse events during MAP participation included falls (11.8%), agitation (11.8%), aspiration (5.9%), and ongoing illicit alcohol use (11.8%). Conclusions: A Managed Alcohol Program is a novel approach to help reduce harms for individuals with severe alcohol use disorder while in hospital and to help achieve goals of hospitalization. Improved liver function and few adverse events suggest that this approach may be relatively safe. Further study is needed to better evaluate who might benefit from the use of managed alcohol in hospital and the magnitude of benefits and harms.

Financial Support: None

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ID: 775
Additive effects of HIV-infection and chronic tobacco smoking on brain microstructure

Huajun Liang, University of Hawaii

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Imaging

Abstract: AIM: Tobacco smoking prevalence in adults with HIV-infection (HIV+) is typically three times higher than the general population in the United States. Both HIV-infection and chronic smoking were associated with abnormal brain microstructures and cognitive impairment in humans. Whether smoking increases HIV viral or the risk for HIV-associated neurocognitive disorder (HAND) is unknown. This study aims to evaluate potentiate additive or synergistic effects of tobacco-smoking and HIV-infection on brain microstructures using a 2x2 design. We hypothesized that HIV-smokers would show the greatest white matter abnormalities compared to seronegative (SN). METHOD: Diffusion tensor imaging (DTI) was obtained in 21 HIV+ smokers, 25 HIV+ non-smokers, 25 SN smokers and 23 SN non-smokers. Fractional anisotropy (FA), mean diffusivity (MD), radial (RD) and axial diffusivity (AD) were assessed in 16 major fiber tracts and 5 subcortical grey matter regions. Participants were also assessed for cognition (seven neurocognitive domains). ANCOVA was used to detect group differences, with age as a covariate. RESULTS: HIV+ participants had higher AD in genu corpus callosum and lower FA in Superior longitudinal fasciculus than SN controls. Smokers had higher MD and AD in anterior corona radiata, and higher MD and RD in splenium corpus callosum than non-Smokers. Significant HIV-by-smoking interaction on AD was detected in the sagittal stratum. HIV+ participants had lower scores on all but learning and memory tasks than SN controls, and Smokers had lower scoreS on executive, learning and memory tasks than non-smokers. Age-dependent FA decrease and diffusivity increase were found in most fiber tracts and the hippocampus. CONCLUSION: Low FA and high diffusion in the white matter regions reflect less restricted water movement, which could result from axonal damage and tissue swelling associated with neuroinflammation. Our findings suggest that HIV infection and chronic smoking may have additive effects on these white matter microstructural abnormalities.

Financial Support: This work was supported by the National Institutes of Health grants (2K24-DA16170; U54- NS56883; G12 MD007601).

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ID: 776
Assessing cannabis use outcomes in a clinical trial for Cannabis Use Disorder: self-report, qualitative urine toxicology and quantitative urine toxicology approaches

Nicolas Schlienz, Johns Hopkins University School of Medicine

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Treatment

Abstract: Aim: Urine drug testing is the gold standard measure for objectively determining drug abstinence in clinical trials for treating substance use disorders. However, it is common for heavy cannabis users to take one month or longer to achieve a negative urine toxicology test following cessation. Here we evaluate three approaches to determining cannabis abstinence using data from a recently completed clinical trial. Methods: Cannabis use was assessed in 127 treatment-seeking adults via self-report (Timeline Followback; TLFB), qualitative urine dipstick tests with a 50 ng/mL THCCOOH cutoff, and using an algorithm developed by Schwilke and colleagues (2011) in which new use is differentiated from residual cannabinoids by comparing creatinine-adjusted THCCOOH levels between consecutive urine samples. THCCOOH and creatinine quantitation were conducted using enzyme immunoassay (EIA) test methods. TLFB and qualitative drug tests were obtained twice weekly and quantitative EIA tests were obtained weekly during a 12-week treatment program. Results: 84% of study participants self-reported at least one day of complete abstinence, 46% were classified as abstinent for at least one visit analyzing sequential urine samples via the Schwilke algorithm, and 28% achieved at least one negative urine result with qualitative testing. Use of the Schwilke algorithm allowed for the detection of shorter periods of sustained abstinence (1-3 weeks duration) that were missed by qualitative drug testing and also identified individuals who falsely self-reported sustained abstinence. Agreement between self-reported abstinence and the Schwilke algorithm was greater than 90% for 106 of 127 (83%) participants. Conclusion: Classification of recent cannabis abstinence varies considerably between self-report, qualitative, and algorithmic assessment modalities and illustrates the difficulty of accurately capturing cannabis abstinence. Though self-report was accurate in most instances, several cases of self-reported abstinence were not confirmed with objective testing. An approach that combines these methods can increase precision in documenting cannabis abstinence in clinical trials.

Financial Support: U01DA031784, T32DA007209

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Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: Johns Hopkins University School of Medicine

ID: 777
Associations between PTSD, alcohol poisoning, and drug overdose among individuals in residential treatment

Kipling Bohnert, University of Michigan and Department of Veterans Affairs

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Treatment

Abstract: Aim Trauma and posttraumatic stress disorder (PTSD) symptoms are common among patients in residential drug treatment settings; however, few studies have examined associations between PTSD and history of alcohol poisoning and drug overdose in this setting. The current study sought to examine such potential associations in this setting. Methods The sample comprised patients from a large residential treatment center in the Midwest who completed a cross-sectional survey during treatment (n=433). Traumatic event exposure was queried, and positive (≥4 symptoms) and negative (≤3 symptoms) PTSD screening was assessed via the Short Screening Scale for PTSD. Bivariate statistical comparisons (e.g., chi-square tests) were used to examine differences between those who screened positive and negative for PTSD among those exposed to a traumatic event. Results 63% (n=281) of the sample reported lifetime exposure to a traumatic event. Among those exposed, 71% (n=201) screened positive for PTSD. Those who screened positive for PTSD were more likely to have a history of alcohol poisoning and drug overdose than those who screened negative, as well more episodes of poisoning and overdose. For example, those screening positive for PTSD were more likely to have 3 or more alcohol poisonings and drug overdoses than those without PTSD (79% vs. 63%, $p < 0$ .05, and 54% vs 22%, $p < 0$ .05, respectively). Conclusions These preliminary findings suggest a need to incorporate and develop novel interventions to reduce PTSD symptoms during residential drug treatment. Additionally, the findings suggest specific drug-related harms, e.g., overdose, are associated with PTSD, and further longitudinal research should explore the mechanisms of these associations.

Financial Support: VA CDA 11-245; NIDA R34 DA035331

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Company Affiliation: University of Michigan and Department of Veterans Affairs

ID: 778
The sterile injection equipment discounting task: A novel measure of infectious disease risk among injecting heroin users

Evan Herrmann, Battelle Memorial Institute

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: AIDS/Immune

Abstract: Aims: Injection drug use is a leading transmission vector for bloodborne pathogens (e.g. HIV, Hepatitis), leading to >30,000 new cases/year in the USA alone. Syringe exchange programs and psychosocial interventions reduce, but do not eliminate, the sharing of injection equipment, indicating the decision-making processes that underlie continued syringe sharing warrant investigation. Here, we present data from a pilot study examining the effects of delayed access to sterile injection equipment on unsafe injection practices among heroin users using a novel Sterile Injection Equipment Discounting Task (SIEDT). Methods: Non-treatment-seeking injecting heroin users (n=16) completed the SIEDT, a 27-item Monetary Choice Questionnaire (MCQ), the Subjective Opioid Withdrawal Scale (SOWS), and an Injection Risk Behavior Questionnaire (IRBQ). The SIEDT presented participants with hypothetical choices between using shared equipment to inject drugs immediately vs. waiting a series of six delays, ranging from 5 minutes to 1 week, to inject with sterile equipment. Raw SIEDT and MCQ data were used to calculate metrics of discounting [Area Under the Curve (AUC) and k values], SOWSs were sum-scored, and data on real-world risk behavior were extracted from IRBQs. Results: Participants' likelihood of using sterile injection equipment decreased robustly as a function of delay ($p < 0 .001$) in a manner well-fit by hyperbolic discounting functions [$V=A/(1+k*D)$; mean RMSE=0.09]. MCQ discount rates were consistent with those observed previously among heroin users (average geomean $k = 0.12$). SOWS scores were positively correlated with discounting of money ($R2 = 0.29$, $p = 0.04$), but not sterile injection equipment. Over two-thirds (11/16) of participants used shared injection equipment in the past year. Steeper discounting of sterile injection equipment was associated with real-world sharing ($R2 = 0.37$, $p = 0.01$); money discounting was not. Conclusions: The SIEDT appears to be a valid and sensitive measure of the effects of delay on choices about sharing injection equipment among heroin users. Future studies should examine the SIEDT's clinical utility.

Financial Support: R01DA039169-01A1

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ID: 779
Examining the relationship between dopamine 2 (D2) receptor availability, early life stress (ELS), and vulnerability to the reinforcing effects of cocaine in male and female rhesus macaques.

Alison Wakeford, Yerkes National Primate Research Center

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Stimulants

Topic: Imaging

Abstract: AIM: Early life stress (ELS) is a strong predictor for the emergence of cocaine use in adolescence and women show a heightened sensitivity to cocaine use. The prevalence of infant maltreatment in rhesus monkeys is similar to that reported in humans, providing an ideal model to examine the relationship between ELS and cocaine use. Dopamine 2 (D2) receptors also play a critical role in the abuse-related effects of cocaine. Accordingly, D2 receptors were examined in the striatum and prefrontal cortex (PFC) in rhesus monkeys to examine the relationship between D2 receptor availability, ELS, and cocaine self-administration (SA). METHODS: [18F]-Fallypride was used to assess D2 binding potential in the PFC, and ventral and dorsal striatum in ten maltreated (MALT) and control subjects approximately 1 year prior to SA. Animals were then trained to respond under a fixed-ratio 20 response (FR 20) schedule of i. v. cocaine delivery (0.01-0.1 mg/kg/infusion). After meeting criteria for stable SA, animals progressed through a full dose-effect curve to establish the dose that engendered the highest response rate (EDMax), and were then examined under maintenance conditions. RESULTS: MALT animals showed significantly lower D2 receptor binding potential in the PFC, and females trended towards significantly lower D2 receptor binding in the PFC. MALT animals demonstrated higher response rates during limited access, but no significant differences in days to acquire SA or number of reinforcers earned between MALT and control or males and females emerged. CONCLUSIONS: Initial findings from these experiments demonstrate lower D2 receptor availability in areas of the brain relevant to top-down control of drug consumption, and higher response rates in MALT animals, suggesting an inability to control drug intake. More subjects are needed to make definitive conclusions regarding the relationship between D2 receptor availability in areas of the brain germane to ELS and drug addiction.

Financial Support: This research was supported by USPHS grants DA 038588 (MMS/LLH), DA 010344 (LLH), DA 031246 (LLH), and P51OD11132 (YNPRC).

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ID: 780
Trends in Opioid-related overdose deaths in Virginia from 2011-2016

Lori Keyser-Marcus, Virginia Commonwealth University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: AIMS: The increased availability of fentanyl, fentanyl analogs and novel (designer) synthetic opioids in recent years has lead to a corresponding rise in opioid-related overdose deaths. The current investigation sought to examine the emerging role of these powerful opioids in overdose deaths. METHODS The present study utilized data from the Virginia Department of Health Medical Examiner Data System. Records used for the current analyses included individuals who experienced a fatal drug overdose between 2011 and 2016, who had a positive toxicology result for one or more opioids, and for which opioids were determined to be a primary/contributing factor to the cause of death (N=4473). Individuals who had deaths that were determined to be the result of intentional overdose (suicide, n= 349 or homicide, n=1) were excluded from the sample, resulting in final sample size of n=4123. Opioid overdose groupings included deaths involving: heroin only, prescription opioids only, fentanyl and fentanyl analogs only, heroin and prescription drugs, prescription drugs and fentanyl, heroin and fentanyl, and all three opioid categories combined. Trends over time in opioid-related deaths were examined with regard to opioid categories, and key demographic characteristics (eg. sex, race). RESULTS Increases in overdose-related deaths were noted for heroin and all fentanyl-associated categories over time. Although only 2% of opioid overdose deaths were attributed to heroin in 2016, it accounted for 30% of all heroin deaths since 2011. Dramatic increases were noted in all fentanyl-associated deaths, with fentanyl only deaths accounting for 24% of all deaths in 2016, in contrast to 6% in 2011-2012. These trends are apparent in both sexes. CONCLUSION Opioid misuse in the US continues to be a problem. Abuse of prescription painkillers has been at the forefront of this issue. Fentanyl and fentanyl analogs present a new challenge in overcoming opioid-related morbidity and mortality.

Financial Support: Funded U54 DA038999

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ID: 781
Longitudinal brain metabolites changes in young marijuana users

Christine Cloak, University of Maryland, School of Medicine

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Adolescent

Abstract: AIM: Marijuana (MJ) use often begins during adolescence. This study aims to longitudinally monitor the effects of MJ use on adolescent (13-23 years old) brain development using 1H-MRS and cognitive measures. METHODS: 74 young regular marijuana users (MJ: 41 males) and 60 controls (CON: 32 males) were evaluated for memory and executive function, and underwent localized 1H-MRS at 3T, at baseline and annually up to 4 years. Metabolite levels were measured in anterior cingulate cortex (ACC) and frontal white matter (FWM), and processed using LCModel. Groups were compared using a mixed model ANCOVA and posthoc regression analysis. RESULTS: MJ users were 19.3±2.2 years old, began using at 14±2 years of age, and smoked for 52±22 months. CON were 19.0±2.5 years old; 33 never used MJ while 27 used 2±2 joints in their lifetime. Some participants smoked tobacco/cigarettes or used alcohol recreationally. Frontal white matter glutamate+glutamine (GLX) and choline levels were lower in MJ users (p=0.02). However, both metabolites increased with age in MJ users, but decreased with age in CON (interaction-p=0.02). Anterior cingulate cortex GLX levels decreased with age across both groups (p=0.03), but the two groups had similar levels across age and during the follow-up period. Both groups showed improved scores with age on Matrix Reasoning and Digit Symbol (P < 0 .001); however, MJ users had poorer performance at baseline that improved more with age (interaction-p < 0 .04). CONCLUSION: Regular MJ use may impact adolescent brain development. Altered age-dependent changes in GLX and choline in MJ users may reflect altered neuronal and glial metabolism or disruption of maturation in myelination. Memory deficits that are often detected in adult MJ users were not observed; however, frontal lobe function was poorest in the youngest MJ users, but improved with older age. These subtle metabolite and cognitive changes may contribute to deficits observed in older MJ users.

Financial Support: Support: Queen Emma Research Fund (033105), NIH (K01-DA021203, 2K24-DA16170, K02-DA16991, 2U54-NS039406, U54-NS/DA56883 & ONDCP

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Degrees: MA MD Ph.D etc:: Ph.D.

Company Affiliation: University of Maryland, School of Medicine

ID: 782
The Cocaine Biobank: A repository of biological samples from genetically characterized outbred rats that exhibit compulsive-like escalation of cocaine self-administration

Olivier George, The Scripps Research Institute

Abstract Category: Program Descriptions

Abstract Detail: Animal Study

Drug Category: Stimulants

Topic: Mechanisms of Action

Abstract: AIM: Identification of the mechanisms that underlie compulsive cocaine use is a major goal for understanding the genetic risk factors for cocaine use disorder and facilitating the identification of novel druggable targets. A key issue for the field is the lack of a repository that contains biological samples from behaviorally and genetically characterized rats. We introduce the Cocaine Biobank (www.cocainebiobank.org), a repository of biological samples from a unique, genetically diverse strain of outbred heterogeneous stock (HS) rats that have been behaviorally and genetically characterized using next-generation sequencing, state-of-the-art behavioral screening, and a variety of preservation techniques. METHODS: Male and female rats are trained to self-administer cocaine (0.5 mg/kg/inf) in daily 6 h sessions. The animals are screened for compulsive cocaine use using progressive-ratio responding and responding despite adverse consequences (contingent footshocks). RESULTS: The results showed high individual variability with vulnerable and resistant rats that is likely to facilitate the detection of gene variants and the molecular and cellular mechanisms that are associated with vulnerable vs. resistant individuals. Preservation techniques include perfusion, snap-freezing, and cryopreservation to maximize the compatibility with cellular, molecular, and anatomical methods, including generation of inducible pluripotent cells. CONCLUSION: The results from these studies and the use of the Cocaine Biobank have the potential to have a sustained impact on the field of addiction because they will identify novel druggable targets, provide a comprehensive analysis of compulsive cocaine use in both males and females, and provide a unique data/tissue repository that will facilitate follow-up and replication studies.

Financial Support: NIH/NIDA DA043799

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ID: 783
Receipt of opioid medications and other treatments among soldiers with post-traumatic stress disorder (PTSD)

Mary Jo Larson, Brandeis University, Heller School for Social Policy and Management

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: Aim: Posttraumatic stress disorder (PTSD) has been associated with increased likelihood of chronic pain. This paper investigates the receipt of prescribed opioid medications, other prescriptions and nonpharmacologic treatments among post-deployment active duty soldiers with a PTSD diagnosis. We hypothesize that PTSD is associated with increased opioid prescribing and adverse events such as hospitalization and substance use disorder treatment. Methods: We performed a retrospective review of administrative data from the Military Health System Data Repository for one-year post-deployment of 434,986 soldiers returning from OEF/OIF missions in 2008-2011. Using diagnoses on encounters/claims, we identified soldiers with PTSD diagnosis and and/or with diagnoses associated with chronic pain. We examined receipt of medications and days-supply in these classes: opioid, tramadol, other analgesic, benzodiazepine, anxiolytic, anti-psychotic, and stimulant. Based on procedure codes on healthcare claims/encounters, we examined utilization of treatment services: complementary and integrative pain management (e.g., physical therapy, chiropractic, massage, acupuncture), specialty mental health, specialty substance use, other outpatient visits. Bivariate analyses examined association of PTSD diagnosis with opioid receipt and other non-pharmacologic treatment services. Analyses will explore association of treatment involving opioids with other outcomes such as emergency department use, hospitalization, healthcare for alcohol or drug use disorder. Results: Analyses identified 24,373 soldiers who received a diagnosis of PTSD (5.6%). More than one-third (34.1%) also had self-reported moderate or severe chronic pain or an acute pain event. Relative to soldiers without PTSD, soldiers with PTSD had higher receipt of all prescriptions. Regarding the opioid class, 54.5% of soldiers with PTSD had a fill compared to 33.6% of soldiers without PTSD, and mean annual days supply was also higher (61.1 days vs 19. Conclusion: Soldiers with PTSD were more likely to receive opioids than other soldiers with chronic pain, which implies that additional research is needed to understand if this use is associated with adverse outcomes.

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ID: 784
Poly-product drug use disparities in adolescents of lower socioeconomic status: Emerging trends in nicotine products, marijuana products, and prescription drugs

Mariel Bello, University of Southern California

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Polydrug

Topic: Adolescent

Abstract: AIM: Objective socioeconomic status (SES), such as parental education, has demonstrated inverse associations with adolescent cigarette, alcohol, and marijuana use. However, the extent to which these associations generalize to poly-product use of new and emerging drugs (e.g., electronic cigarettes, hookah, and cigars) that are gaining popularity in youth are unknown. Furthermore, there is scarce research on the possible unique influence of subjective SES—an adolescent's perception of their current social standing relative to their peers in school and U.S. society—on poly-product drug use in adolescents. The current study examined associations of objective and subjective SES measures with single, dual, or multiple product use of nicotine (cigarettes, hookah, cigars, e-cigarettes), marijuana (marijuana, marijuana edibles, marijuana vaping, blunts), and prescription drugs (stimulants, painkillers). METHODS: Data were from a socioeconomically diverse sample of 11th grade students in Los Angeles, California (N = 2,166; 54.8% Female) who completed semi-annual surveys assessing objective SES (i.e., parental education), subjective social status (SSS: societal- and school-level), and substance use over one's lifetime and in the past 30 days. A series of polytomous logistic regression models were estimated. RESULTS: Lower levels of parental education were significantly associated with increased odds of being a lifetime and current single, dual, or poly-product user of nicotine and marijuana products. Lower school-level SSS was significantly associated with greater odds of lifetime and current single, dual, or multiple product use of nicotine, marijuana, and prescription drugs. We also found significant associations of lower societal-level SSS with decreased odds of being a lifetime and current single user of nicotine and marijuana products. CONCLUSION: Findings demonstrated differential patterns of association across objective and subjective SES measures with adolescent poly-product drug use. Results of this study may inform public education, prevention, and intervention efforts to address poly-product use of new and emerging drugs among socioeconomically disadvantaged youth populations.

Financial Support: NIH Grant R01-DA033296 (PI: Leventhal), National Science Foundation Graduate Research Fellowship DGE-1418060 (PI: Bello)

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Degrees: MA MD Ph.D etc:: MA

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ID: 785
Effects of modes of nicotine administration on depression

Sophia Holmqvist, University of California San Diego

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Nicotine/Tobacco

Topic: Adolescent

Abstract: AIM Modes of administration for nicotine among adolescents have changed in recent years with the widespread use of vaping devices. A large body of evidence supports an association between nicotine use and depression; however, this association has not been examined in the context of changing patterns of modes of administration and declining cigarette use. We hypothesized that 1) the decline in cigarette use has been lower among those with a history of depressive symptoms; 2) the increase in the use of vaping devices as the sole mode for nicotine administration would be highest in those with a history of depressive symptoms and 3) Increases in vaping only nicotine administration would compensate for decreases in cigarette use. METHODS In this repeated cross-sectional study, suburban San Diego high school students (N's>1572) were surveyed over an 18 year period (1999-2017). Surveys were self administered as part of the California Healthy Kids Survey. Samples were ascertained in an attempted census of each school. RESULTS There was a significant decline in cigarette use over last 18 years among adolescents while Marijuana use has been relatively stable with a rise since 2014. The use of vaping devices has increased from 3.53% to 21.9%.from 2011 to 2017. The rate of use of vaping devices for nicotine administration by non cigarette smokers exceeded the decline in cigarette usage. Of those reporting a history of depressive symptoms, the odds of vaping nicotine usage was 87% higher than those without a history of depressive symptoms (pCONCLUSION Adolescents may be switching from cigarette use to vaping devices for nicotine delivery. This is particularly important when considering adolescents with a history of depression because of their increased odds of vaping nicotine.

Financial Support: NIAAA: 1U01AA021695-01 NIAAA: 5R01AA012171-14

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Company Affiliation: University of California San Diego

ID: 786
The role of E3 ligase parkin deficit in vulnerability to abuse methamphetamine

Anna Moszczynska, Wayne State University

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Stimulants

Topic: Mechanisms of Action

Abstract: Aim: There are no effective pharmacotherapies for addiction to methamphetamine (METH), a highly reinforcing psychostimulant drug. Elucidation of new drug targets for such pharmacotherapies and identification of genes predisposing individuals to METH abuse are highly warranted as some individuals become highly addicted to METH, and they suffer the most from neurological and social consequences of METH abuse. Risk for high METH abuse has a genetic component that is not fully understood. We demonstrated that parkin gene (Park2-/-) knockout (PKO) rats self-administered significantly more METH than their wild-type counterparts, thus implicating the Park2 gene and parkin protein deficit in vulnerability to abuse METH. The molecular mechanisms downstream of Park2 knockout that lead to enhanced METH self-administration are not known. Methods: We have addressed this knowledge gap by (1) examining dopaminergic system in the dorsal and ventral striatum in drug-naïve two month-old wild type and PKO rats and by (2) assessing preference for METH in wild type, PKO and rats overexpressing parkin in the striatum. Results: We found that striata from the PKO rats had lower levels of postsynaptic DA D2 (D2L) receptor and trace amine-associated receptor 1 (TAAR-1) than their wild type counterparts. Lower activities of monoamine oxidases accompanied these alterations. Rats overexpressing parkin in the ventral striatum displayed lower conditioned place preference for METH than the wild type rats. Conclusion: Parkin deficit mediates vulnerability to METH abuse via decreasing D2L and TAAR1 levels and increasing reinforcing properties of METH.

Financial Support: NIH/NIDA R01 DA034783

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Degrees: MA MD Ph.D etc:: M.Sci., Ph.D.

Company Affiliation: Wayne State University

ID: 787
What teens want: A mixed methods study on the use of mobile phones and its technology for substance use treatment

Stacy Ryan, Baylor University

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Treatment

Abstract: Aims: Treatments for adolescent substance abuse are associated with decreases in substance use. Even among these most promising treatments, rates of relapse are high. Due to relapse rates and the ubiquitous use of mobile phones, researchers are exploring the use of mobile phone technology to help teens maintain treatment gains. However, no research has examined whether the use of mobile phones is acceptable to teens; and no research has explored teen's preference for which mobile phone technology to use as part of treatment. Consequently, we conducted a survey study of teens enrolled in substance use treatment. Methods: Adolescents in treatment for substance use completed a survey of mobile phone ownership, usage, and accessibility. Adolescents also provided information about their use of social media and preferences for using mobile phone technology as part of treatment services. Results: One hundred and five adolescents (M age = 15.9; SD =1.5) with a primary diagnosis of cannabis use disorder participated in this study. Results revealed 92% of teens owned a mobile phone. Results also showed more than half the sample (63%) reported changing their phone number one (25%) or more (38%) times in the past year. Additionally, 50% reported losing their phone as a consequence. More than half the sample was in favor of text messaging interventions (71%) and online groups (71%). Only 33% of respondents were in favor of mobile phone treatments that operate using GPS or geolocation. By July 2018, we will have in-depth interview data on reactions to GPS and geolocation as a feature of mobile phone-based interventions. Conclusions: Survey results suggest ownership of mobile phones among substance-using teens is ubiquitous. Teens are in favor of using mobile phones as part of treatment, with a preference for text messaging and social media-based interventions, and not in support of programs that include GPS or geolocation.

Financial Support: None

First Name: Stacy

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Degrees: MA MD Ph.D etc:: Ph.D

Company Affiliation: Baylor University

ID: 788
Adolescent risk and protective factors for substance use disorders in emerging adulthood

Angela Heads, University of Texas Health Science Center, McGovern Medical School

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Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Alcohol

Topic: Adolescent

Abstract: Aims: Adolescence is characterized by greater independence and autonomy. It is also a period of increased experimental behaviors, some of which have risk for later health problems. Emerging adulthood is the period of development from late teens to early 20's that has been identified as a period of increased use of alcohol and illicit drugs. The current research explores adverse childhood experiences (ACEs; physical abuse, emotional abuse or sexual abuse) as potential predictors of lifetime alcohol use (AUD) and other substance use disorders (SUD) and examines school engagement, educational attainment and future expectations as potential protective factors for later SUDs. Method: For the present study, the working sample consisted of 2470 participants in the National Longitudinal Study of Adolescent to Adult Health (Add Health). This sample included adolescents in grades 7-9 at the time of the Wave I survey (mean age = 14.0, SD=1.09) who also provided data at Wave IV (mean age=26.9, SD=1.12). The sample was 59% White, 23.1% African American and 10.1% Hispanic). 54.8% of respondents were female. Results: 30.9% of the sample met criteria for AUD, 16.3% met criteria for cannabis use disorder and 8.9% met criteria for another SUD. 50.7% of participants had experienced one or more ACEs. Men were more likely to have a diagnosis of AUD than women. Substance use at Wave I increased the likelihood of developing a SUD in emerging adulthood. ACEs significantly increased the likelihood of developing an AUD. School connectedness did not moderate the effect of ACEs on developing a SUD. Conclusions: Early substance use and experience of ACEs during adolescence are risk factors for developing a SUD by emerging adulthood. Potential protective factors and implications for prevention of SUDs in emerging adulthood are discussed.

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ID: 789
Motivations for the misuse of prescription drugs related to many mental health problems

Tess Drazdowski, Oregon Social Learning Center

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Other (specify)

Topic: Epidemiology

Abstract: AIM: Prescription drug misuse (PDM) is a significant and growing public health problem with an estimated 18.9 million people over the age of 12 reporting past year PDM (Hughes et al., 2016). PDM is also associated with mental health issues. This project aimed to better understand the connections between PDM motivations and mental health issues to inform prevention and intervention efforts. METHODS: Using nationally representative data from the 2016 National Survey on Drug Use and Health this project investigated which motivations for use are related to a variety of mental health problems including: any mental illness, serious mental illness, major depressive episode in the past year, and serious thoughts of suicide. Multinomial regressions of the main motivation for the last instance of PDM for each mental health problem were conducted separately for each prescription drug class using weighted data. RESULTS: Across all prescription drug classes most motivations were related to an increased likelihood of all mental health problems with the exception of "hooked/have to have the drug." Misusing prescription drugs to help with feelings or emotions consistently had the highest odds ratios of increased likelihood of mental health problems (9.67-42.43). Misusing prescriptions to relieve physical pain, to experiment, or to increase/decrease the effects of other drugs consistently had the lowest, but still significant, odds ratios across prescription drug classes (2.08-4.31). CONCLUSION: While there were some specific differences based on prescription drug class, a variety of motivations increased individuals' likelihood to have mental health problems and common themes were found across drug classes. Therefore, prevention and intervention efforts need to be multifaceted and should provide individuals with other ways to cope with negative feelings and emotions to reduce the misuse of prescription drugs.

Financial Support: Applying for early career funding

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ID: 790
Mortality rate among people who Inject drugs (PWID) in Haiphong, Vietnam: High burden of probable infectious causes

Nicolas Nagot, University of Montpellier

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Epidemiology

Abstract: Aim The mortality rate and likely causes of deaths remain unknown in low-middle income countries, despite the implementation of harm reduction and HIV control programs targeting PWID. The aim of this survey was to estimate the mortality rate and likely causes of deaths among a cohort of PWID in Haiphong, Vietnam. Methods Two successive cohorts of 250 and 759 WID were initiated through 2 Respondent-Driven-Sampling (RDS) surveys implemented 2 years apart in Haiphong city, Vietnam. PWID with recent injection marks and drugs detected in urine were enrolled, with followed at 6 and 12 months, with CBO support to facilitate access to methadone and antiretroviral therapy (ART). At each visit, drug use, sexual and drug-related behaviours were recorded through face-to-face questionnaires. Likely causes of deaths were assessed by information from health care workers or the family. CBOs actively searched for the vital status of participants who dropped out. Results We recruited overall 965 PWID with a mean age of 39 years; 92% were males, all injected heroin, 60% ever smoked methamphetamine, 15% have smoked recently cannabis and 9% have recently used other non-injectable drugs. Overall, 1168 years of follow-up were accumulated and 23 deaths were recorded, giving an overall mortality rate of 2.0/100 pers-yrs (95%CI: 1.2-2.9). Among HIV-positive and HIV-negative PWID, this mortality rate was 3.2/100 pers-yrs and 1.2/100 pers-yrs, respectively. The likely causes of deaths were overdose (N=4, 17% of deaths), suicide (N=3, 13%), tuberculosis (N=5, 22%), hepatitis/cirrhosis (N=3, 13%), other causes (N=8, 35%). Conclusion The high contribution of preventable and treatable infectious diseases (mainly tuberculosis and hepatitis) in PWID deaths in Vietnam advocates for innovative tailored strategies for active TB / hepatitis screening and care.

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ID: 791
The efficacy of exercise as in anti-relapse intervention is associated with BDNF and GRM5 gene expression in the prefrontal cortex

Wendy Lynch, University of Virginia

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Stimulants

Topic: Mechanisms of Action

Abstract: Aims: Exercise is a promising treatment for addiction. In order to prevent relapse, however, it may need to be introduced early in the course of treatment. We propose that exercise, by upregulating Bdnf, offsets its deficit in the prefrontal cortex (PFC) during early abstinence, and in doing so, prevents its compensatory rise during protracted abstinence, as well as other neuroadaptive changes, that underlie the relapse vulnerability. To test this hypothesis, we compared the effects of exercise during early versus late abstinence on cocaine-seeking and gene expression in the PFC. Methods: Following extended access cocaine self-administration (10-days; 24-hr access/day; discrete trial procedure; 4-trials/hr; 1.5-mg/kg/infusion) male rats began a 14-day abstinence period without (sedentary) or with access to a wheel (2-hr/day) during early (days 1-7), late (days 8-14), or throughout (days 1-14) abstinence (n=8-13/group). Cue-induced reinstatement of cocaine-seeking was examined on day 15 of abstinence. An additional group of rats were given access to saline and housed without access to a wheel during “abstinence” (saline controls; n=9). Using qPCR, several exons/genes within the Bdnf (exons Bdnf-I, II, -IV, and -IX, and Trkb), and glutamatergic signaling pathways (Grm2 and 5; Gria2 and 3; Grin1) were examined. Results: Exercise during early and throughout, but not during late abstinence, decreased subsequent cocaine-seeking. Cocaine upregulated Bdnf-IV expression, and exercise during early and throughout, but not during late abstinence, blocked this increase. Bdnf-IV expression was variable in the late exercise group, however, and overlapped with the early and throughout groups. Grm5 gene expression robustly corresponded to the efficacy of exercise and each of the predicted comparisons were significant. Grm5 gene expression also positively associated with levels of cocaine-seeking. Conclusions: These results suggest that exercise normalizes Bdnf and glutamatergic signaling through Grm5 and may underlie that efficacy of exercise at reducing cocaine-seeking/relapse vulnerability.

Financial Support: NIDA grant R01DA039093

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ID: 792
Development of a Facebook intervention for depressed cannabis users

Suzette Glasner, Integrated Substance Abuse Programs (UCLA)

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Treatment

Abstract: AIM:Cannabis use disorders (CUD) are associated with four times the risk of developing depression; moreover, depression is one of the most commonly cited conditions for which cannabis is used medicinally. Motivational enhancement therapy (MET) combined with cognitive behavioral therapy (CBT) is the current state-of-the art intervention for CUD; nevertheless, availability of this approach is limited. Enhancing dissemination and implementation of CBT/MET via technology can have a high potential public health impact. The objective of the present study is to improve treatment for adults with CUD and comorbid major depression by augmenting an evidence-based, computer-assisted strategy combining MET and CBT with a social media intervention delivered via Facebook to reduce cannabis use and depressive symptoms. METHODS: In the present study, with user input, we developed a social media intervention, delivered using private Facebook groups, for adults with CUD and comorbid depression. In this presentation, we describe the formative process used to develop and refine a 10-week social media intervention targeting cannabis use and depressive symptomatology in a population of adults with depressive disorders and CUD. Focus groups (N=14) were convened with potential end users, who participated extensively in the intervention content development process. RESULTS: Two major themes emerged. First, privacy concerns were reported by the majority of users; thus, the use of a secret Facebook group was considered essential to engagement in the intervention. Second, presenting research-based information regarding cannabis use and relapse, was anticipated to be particularly helpful to potential end users of the program. To this end, a participant stated, “on other [mood disorder] Facebook groups, I couldn’t fully relate to personal stories; I wish they were combined with research findings and facts.” CONCLUSION: Use of a social media platform with secure privacy settings to deliver therapy skills training may provide an easily deployable strategy for the treatment

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ID: 793
A digital therapy to support recovery from opioid use disorder

Patricia Cavazos, Washington University St. Louis

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Opiates/Opioids

Topic: Treatment

Abstract: AIM Individuals struggling with an opioid use disorder (OUD) are often difficult to reach and under-researched. The goal of this study was to assess whether people who network online about their opioid use would be willing to access an online-based app to help with treatment. METHODS Participants who met criteria for OUD and were not currently using Medication Assisted Treatment (MAT) were recruited via a social media platform called Reddit to pilot the use of an app called uMAT-R (n=29). For this study, the features of uMAT-R only included content on evidenced-based treatment recovery options taken from SAMHSA's online handbook entitled "Decisions in Recovery: Treatment for Opioid Use Disorder." Participants were queried on current opioid use, engagement in treatment, HIV and HCV risk, and app preferences and usefulness. RESULTS Feedback from participants was mostly positive (Figure 1). In addition, the app increased positive attitudes about MAT (pre-app mean score 3.31, sd 0.46; post-app mean score 3.46, sd 0.52; $t(25)=2.12$, $p=0.044$) and interest in starting treatment (pre-app 32%, post-app 48%; McNemar's test $p=0.046$). CONCLUSION Our results show that using digital therapeutics constitute promising tools to educate and motivate individuals with OUD into MAT recovery.

Financial Support: R01DA039455, K02DA043657

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Company Affiliation: Washington University St. Louis

ID: 794
An examination of gender differences in adolescent marijuana use trends post-implementation of liberalized recreational cannabis policies in Washington State

Andrea Stone, University of Washington

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Marijuana/Cannabinoids

Topic: Epidemiology

Abstract: Aim This study examines nuances in adolescent cannabis use trends post- implementation of Washington State's liberalized recreational cannabis policies (LRCP), with special attention to student grade, sex, and perceived social acceptance of youth cannabis use. Historically, it has been observed that a greater proportion of males use cannabis than females. However, differences between use proportions have diminished in recent years. Methods This study utilizes the Washington State Healthy Youth Survey (HYS), which collected data from school-attending youth in grades 6, 8, 10, and 12 during even numbered years (2002-2016). This study uses an aggregate sample size n=256,443 surveys (2002-2016). Analyses included youth with complete data assessing lifetime and past 30-day cannabis use, and personal acceptance of youth cannabis use ("not wrong at all" vs. "at least a little wrong"). Estimated year and sex-specific lifetime and recent cannabis use proportions are estimated stratified by grade. Logistic regression analyses explore statistical interactions between sex, social acceptance, and year, in relation to adolescent cannabis use. Results Grade stratified past-30 day marijuana use trends have remained stable, or slightly decreased post-implementation of I-502, with one noted exception. The proportion of 12th grade females reporting recent cannabis use increased steadily from 2004 (17.8%) through 2016 (25.2%). While 12th grade past 30-day use by males remains statistically higher than females for all years (p-value range=< 0.001-0.038), the gap has diminished. In addition, for lifetime cannabis use in 2016, male and female use proportions did not differ statistically for any grade. Among adolescents in grades 10 and 12, the proportion of youth reporting that cannabis use by kids their age is "not wrong at all" has trended downward. Conclusion While the overall proportion of adolescents using cannabis has remained stable or declined post implementation of Washington's LRCP, prevention efforts may benefit from focusing on older female adolescents.

Financial Support: None

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ID: 795
Translocator protein expression in alcoholism: a [11C]PBR28 PET study in humans and rats

Corinde Wiers, NIH, NIAAA

Abstract Category: Original Research

Abstract Detail: Human

Drug Category: Alcohol

Topic: Imaging

Abstract: AIM: The biological mechanisms of alcohol-induced neurotoxicity have been poorly understood and may involve neuroinflammation. Here we investigated 18-kDa translocator protein (TSPO) expression, a marker of microglial activation and inflammation in a human and animal model of chronic alcoholism. METHODS: 36 human participants: n=19 patients with alcohol use disorder (AUD) within a week after their last drink, and n=17 healthy controls (HC) were scanned using [11C]PBR28 and Positron Emission Tomography (PET). In parallel, [11C]PBR28 PET scans were performed in n=19 rats: n=9 chronically alcohol-vaping rats and n=10 alcohol-naïve control rats. Since TSPO gene insertion has been shown to play a pivotal role in cell metabolism and energy production, we further associated TSPO genotype rs6971 and [11C]PBR28 binding with brain glucose metabolism in all human participants using PET and [18F]FDG. RESULTS: AUD patients showed lower [11C]PBR28 binding compared to controls; in medium binders only. In rats, however, there were no group differences in [11C]PBR28 uptake. AUD patients showed lower brain glucose metabolism compared to controls; which is consistent with previous reports. There were no effects of rs6971 on brain glucose metabolism, and no associations between [11C]PBR28 binding and brain glucose metabolism in either group. Blood cholesterol levels correlated negatively with [11C]PBR28 binding in human medium binders, suggesting a role of cholesterol in blocking [11C]PBR28 binding to TSPO. CONCLUSION: These and previous human PET findings suggest lower activation of microglia in the brain in chronic alcoholism; although we could not find this in the rat model of alcohol dependence. In vitro studies with TSPO ligands are needed to investigate neuroinflammation in alcoholism in the absence of endogenous ligands such as cholesterol that may block [11C]PBR28 binding in vivo.

Financial Support: This work was accomplished with support from the National Institute on Alcohol Abuse and Alcoholism (Y1AA-3009).

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ID: 796
GHB in adolescent rat attenuates hippocampus-associated learning

Ratna Sircar, The City University of New York

Abstract Category: Original Research

Abstract Detail: Animal Study

Drug Category: Club/Designer Drugs

Topic: Adolescent

Abstract: Aim: We have earlier reported that repeated systemic treatment with GHB causes deficits in spatial learning and memory in adolescent rats. Here we examined the effects of acute and repeated systemic administrations of GHB on the acquisition and expression of fear responses conditioned to context and auditory cues. Methods: Groups of adolescent Sprague-Dawley rats (Taconic, NY) received injections (one of the two doses) of GHB or equivolume saline either before training or before a testing session that took place 24 hr after training. In repeated drug administration study, separate groups of rats received injections of one of the two doses of GHB or equivalent volumes of saline for 4 consecutive days. On the day of training, animals were given either one of the doses of GHB or saline 30 min before fear conditioning. On the day of testing, rats were placed in the conditioning chamber and each animal's freezing behavior was scored every 10 s. Results: When injected prior to conditioning, both acute and repeated GHB dose-dependently reduced the amount of freezing to the context. However, when injected 30 min prior to testing, the effect of GHB (50-100 mg/kg) on freezing to the context was not statistically significant. Acute and repeated GHB did not significantly alter the amount of freezing elicited by the tone CS when injected either prior to conditioning or prior to testing. Conclusion: In adolescent rats, acute GHB exposure impaired the acquisition of contextual fear memory but not its expression. Also, acute treatment with GHB did not affect the acquisition or expression of auditory cued fear responses. Repeated treatment with GHB also disrupted the acquisition of contextual fear memory but not that of auditory cued fear memory. Together, these data suggest that GHB in adolescent rats impairs hippocampus-associated contextual learning but not amygdala-based cued learning

Financial Support: DA 018234

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