Poster #1

Gambling and Substance Use Co-Occurrence Among Emerging Adults: A Systematic Review

Authors: Anthony King, Jackie Stanmyre, Anne Auguste, Lia Nower

PI Name: Lia Nower

Gambling and substance use co-occur at high rates among emerging adults (ages 18-29). Therefore, this paper aimed to systematically review the latest empirical evidence on the co-occurrence of these behaviors within this population, with a focus on problematic and disordered engagement. Method: Following the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) guidelines, a search was conducted across four electronic databases (PsycINFO, PubMed, Scopus, and Web of Science) for peer-reviewed articles published between 1 January 2015 and 15 October 2024. Inclusion criteria were: (1) quantitative studies, (2) samples within an 18 to 29 age range, and (3) measurement of problematic gambling, substance use, and their co-occurrence. Data were synthesized narratively, and study quality was evaluated using the 14-item QualSyst methodological checklist. Results: A total of 43 studies met all inclusion criteria. Problematic gambling was found to co-occur significantly with alcohol, cannabis, nicotine, and general drug use across multiple studies, with substance-related problems more commonly reported by gamblers than gambling problems were reported by substance users. Stronger co-occurrence associations for problematic gambling and substance use were found in samples using college students and non-probability recruitment methods. Additionally, several risk factors—including impulsivity, anxiety, depression, and being male—emerged as shared correlates of these behaviors. Conclusions: Problematic gambling and substance use are often positively associated among emerging adults, underscoring the need for integrated screening and prevention strategies in these areas. Male gamblers in this population may be especially susceptible to co-occurring problems with these behaviors relative to other peer groups.

Poster #2

Not All Doom and Gloom: What does it mean that men use more alcohol and cannabis on “good days” (and there are a lot of them)?

Authors: Daniel A.R. Cabral, Kelly Sun, Andrea M. Spaeth, Jennifer F. Buckman

PI Name: Jennifer F. Buckman

Alcohol and cannabis are commonly used in college and associated with both positive and negative reasons for/consequences of use. Yet, when and for whom the valence of an experience affects drinking and cannabis use is unclear. This study sought to connect daily substance use to daily positive and negative experiences. Methods: N=150 college students (57% female) completed twice-daily online diaries. Daily life experiences (academic, interpersonal, emotional, physical health) were queried in a single question (responses: -3 (very negative) to 3 (very positive)). Overall daily experience was assessed as: 1 (“the good outweighed the bad”) to 3 (“the bad outweighed the good”). Whether daily experiences predicted the likelihood of (1) drinking alcohol and (2) using cannabis, and whether (3) sex moderated these associations was assessed. Associations between experience valence and alcohol quantity on a given day were also assessed. Results: The likelihood of using cannabis showed a significant Emotional Experience × Sex interaction (p=0.002); more positive emotional experiences predicted cannabis use in men. Significant Experience × Sex interactions on alcohol amount were observed in the emotional

(p=0.015), interpersonal (p=0.008), and overall experience (p=0.020) domains; steeper positive associations were observed in men. Conclusions: Men appeared more likely to use cannabis on days with more positive emotional experiences. Male drinkers also appeared to drink at higher quantities on days with more positive emotional, interpersonal, and overall daily experiences. Thus, male college students without an SUD may use alcohol and cannabis in response to positive emotional and social well-being.

Poster #3

Presence and Type of Cannabinoid Content Information for Products Containing Cannabinoids Other Than Δ9-THC and CBD Through Online CBD/Hemp Retailers in Maryland

Authors: Meagan O. Robichaud, Tory R. Spindle, Meghan B. Moran, Johannes Thrul, G. Caleb Alexander, Ryan David Kennedy,

PI Name: Kristina Jackson

Cannabis products containing cannabinoids other than Δ9-THC and CBD are widely available and often sold with little oversight. This study assesses availability of these products through online CBD/hemp retailers in Maryland and examines cannabinoid information in a sample of product listings to assess clarity and consistency. Methods: Google and Yelp searches (February 10-12, 2024) identified active CBD/hemp retailer websites connected to brick-and-mortar retailers in Maryland. Websites were reviewed to assess availability of product types by cannabinoid (e.g., Δ8-THC edibles and vapes, CBG edibles and vapes). A sample of products from retailers in Baltimore City and each of Maryland's 23 counties was reviewed to identify product type, determine cannabinoid content (types and amounts), assess whether cannabinoid amounts (e.g., percent concentration) were explicitly stated; and determine whether certificates of analysis (COAs) were present and if cannabinoid information was consistent across product listings and COAs. Results: Across 39 retailers, 30 cannabinoids other than Δ9-THC and CBD were observed, including CBG (82%, n=32/39), Δ8-THC (64%, n=25/39), and CBN (62%, n=24/39). Across 175 products sampled, 28.6% (n=50/175) mentioned one cannabinoid, while 71.4% (n=125/175) mentioned at least two, of which 58.4% (n=73/125) specified amounts of each cannabinoid. COAs were available for 33.7% of products (n=59/175), with 57.6% (n=34/59) presenting cannabinoid information inconsistent with that of the product listing (e.g., cannabinoid amounts differing by ≥10% [35.6%, n=21/59]).

Poster #4

Exploratory Factor Analysis of Ecological Momentary Assessments Reveals Multiple Affective Dimensions in Opioid Use Disorder

Authors: Ugne Ziausyte, Francesca M LoFaro, Jalen Nicely, Anna B Konova

PI Name: Anna B Konova

Relapse remains the modal outcome in opioid use disorder (OUD) even among those receiving gold-standard treatment, highlighting the need to identify predictors of relapse and bolster treatment. Recent work has focused on affect and craving, known to impact decision-making and opioid use, as candidate targets for novel just-in-time interventions. However, most studies assess either single emotions (e.g., anger) or broad categories (e.g., negative affect), which may not fully capture the affective landscape of people with OUD. To address this gap, we used ecological momentary assessments (EMA) to probe 26

affective states, 3x daily, for 28 days in treatment-engaged OUD (N=87) and control (N=77) participants. Measures included traditional “positive” and “negative” items as well as craving (e.g., urge to act risky/impulsive, use opioids). Using exploratory factor analysis, we identified four robust dimensions in the data: “High Arousal Negative Affect”, “Low Arousal Negative Affect”, “Positive Affect”, and “Craving & Negative Self-Perception”. This structure suggests a multidimensional affective experience beyond what is typically captured by valence-based models. Moreover, these dimensions were differentially expressed in the OUD group, discriminated those who returned to opioid use during the study, and varied over time. This work provides a more nuanced framework to characterize affective contributions to relapse and inform the development of targeted interventions for OUD.

Poster #5

Intoxication and Intimacy: The Role of Alcohol in Sexual Behavior Among Autistic Young Adults

Authors: Tatyanna Landell, María Eugenia Contreras Pérez, Xiangyu Tao, Kelli Bradley, Casey Cragin, Anthony Spirito, Stephen Sheinkopf, Kristina Jackson

PI Name: Kristina Jackson

Sexual health involves experiences free from coercion, violence, and discrimination. Alcohol use, however, has been linked to increased engagement in risky sexual behaviors—including sex without condoms or under the influence. It is also associated with most sexual assaults among college-aged people. Among autistic individuals, alcohol use and sexual activity remains understudied. Misconceptions, like the belief that autistic people are uninterested in intimacy, may contribute to limited research in this area. Using a subsample from a longitudinal study (n=115,Mage=21.4,SD=1.80;39.2% male),adult participants were categorized into four alcohol use levels:No use,Sip only,Full drink, and Drunk. Sexual experience was measured by asking participants to report if they had ever engaged in sexual intercourse (anal/vagina). Logistic regression models were used to compare sexual experience across alcohol use levels. Using “Drunk” as the reference group, lower alcohol use was significantly associated with reduced odds of having had sex (No Use:B=-2.64, p<.001, OR=0.07; Sip only:B=-2.18, p<.001,OR=0.11;Full drink: B=-1.70, p<.001,OR=0.18). When “No use” was the reference group, higher drinking levels predicted significantly increased odds of sexual activity (OR=1.6;2.5;14.0 for sip, full drink and drunk, respectively). These findings highlight alcohol intoxication as a key factor in sexual activity, and the need for alcohol-inclusive sexual health education for autistic populations.

Poster #6

A Clinical Epidemiological Profile of a Community Health Center from 2015-2021: Emergent Trends in Substance Use Disorder Burdens

Authors: Andrew H. Kim, Sarah E. Cooper, Shalyse A. Sangster, Holly H. Lister, Orrin D. Ware, Stephanie C. Marcello, Jamey J. Lister

PI Name: Jamey J. Lister

Background. Community health centers (CHCs) are a critical setting to address disease burdens in medically underserved areas (MUAs). CHCs serve populations disproportionately affected by substance use disorders (SUDs), yet are infrequently epidemiologically studied. While national trends show changing SUD patterns, it is less clear how representative these are for CHC patients. This study profiles

trends (2015–2021) in the disease burden of SUDs at a northeastern CHC. Methods. Electronic Medical Records data from 3,585 patients aged 18–65 screened for SUDs were analyzed. Descriptive statistics identified demographics and incidence rates for 11 SUDs. Joinpoint regression examined annual percentage change (p<.05) and trends were interpreted by their segment breaks and directional patterns. Results. The sample was mostly male (68.7%) and racially/ethnically diverse (Black/African American=42.7%; White=31.6%; Hispanic=18.6%). 67.9% of patients had at least one SUD and 29.9% had multiple. Trend patterns were 1) continuous increase (cannabis, sedative, hallucinogen, multiple SUDs); 2) initial increase followed by plateau (alcohol, any SUD); 3) no change (stimulant, opioid, other SUDs). Discussion. This study demonstrates a rising burden among CHC patients related to both increased substance use and cooccurring SUDs. We discuss assessment and treatment protocols to improve CHC care delivery.

Poster #7

Alterations in aMCC Electrophysiology are Associated with Ruminative Thought Patterns and Reduced Reward Processing. I'm not sure if you need this or not but wanted to include in case.

Authors: Mallory Jones, Yifan Gao, Joshua Espinosa-Dick, Merna Zaki, Travis Baker

PI Name: Travis Baker

Rumination involves persistent negative, self-referential thoughts and difficulty “letting go” of them. Research of neurocognitive underpinnings of rumination, especially in the context of substance use behavior, is nascent. This pilot study examined associations between rumination and EEG-recorded neural signals during a virtual reward-based T-maze task. We focused on two ERP components linked to anterior midcingulate cortex (aMCC) function: N200 (mean amplitude: 200-300 ms; control) and reward positivity (RewP; peak of difference wave: 240-340 ms; reward processing). Methods: Nineteen participants (ages 18-23; 13 female) completed the Brief State Rumination Inventory (BSRI), Ruminative Response Scale (RRS), Beck’s Anxiety Inventory (BAI), Center for Epidemiologic Studies Depression Scale (CESD-R-20), and the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST). ERP components were measured along midline channels. Results: RewP at FCz differed significantly between ruminators and non-ruminators ($t(17) = -3.22$, $p = 0.005$). High trait ruminators showed no difference between N200 across reward conditions at frontal midline locations (e.g. FCz $t(9) = 1.97$, $p = 0.080$); low trait ruminators did display N200 differentiation (FCz $t(8), = 5.91$, $p < 0.001$). Path analysis indicated that RRS was predicted by RewP at FCz ($\beta = -0.37$, $p < 0.001$) and BAI ($\beta = 0.71$, $p < 0.001$), but not by CESD Anhedonia. RewP did not predict BAI or Anhedonia. Conclusions: We suggest that alterations in aMCC electrophysiology are associated with ruminative thinking. The N200 and RewP components may serve as objective targets for personalized interventions, shifting from broad symptom-based approaches toward targeted neurobiological methods.

Poster #8

Reducing Opioid Use Through Pharmacologic and Non-Pharmacologic Alternatives in the Emergency Department: Findings from the ED-ALT Program at University Hospital

Authors: Mal Mehari, Gene Lee, Kafilah Ali Muhammad, Jose Toribio, Nicole Rothstein, Robert Henhaffer, Sierra Proby, Lily Palomaki, Cynthia Santos MD.

PI Name: Cynthia Santos

The ED-ALT initiative at University Hospital in Newark, NJ, addresses the opioid crisis by integrating innovative pharmacologic and non-pharmacologic pain management strategies in the emergency department (ED). This SAMHSA-funded program introduces alternatives such as IV buprenorphine, ketamine, nitrous oxide, regional nerve blocks, and non-pharmacologic methods including virtual reality, guided meditation, and music therapy, both passive and interactive. Data were collected between 2023 and 2025 through patient surveys and both retrospective and prospective patient chart review. Among 974 patients receiving ED-ALT interventions, all modalities showed statistically significant pain reduction (Wilcoxon Signed Rank p <0.001 for all) on Visual Analog Scale (VAS). IV buprenorphine led to the largest average reduction (VAS Δ=4.38), followed by nitrous oxide (Δ=3.60) and ketamine (Δ=2.99). Passive music therapy was the most effective non-pharmacologic method (Δ=2.97), significantly outperforming interactive music therapy (Δ=2.50, p=0.04). The average opioid administration rates among patients receiving pharmacologic EDALT interventions varied with IV Ketamine associated with the highest rate (70.8%) and IV buprenorphine at the lowest (23.1%). The opioid administration rate across to the pharm groups was 48.3%, excluding the IV ketamine group the opioid administration average rate was 38.37%, which is similar to the national average. Across the nonpharm groups the ED opioid administration and prescription rates were similar with the average ED opioid administration being 36.1% while the average opioid prescription rate was 4.2%. Opioid prescribing at discharge was consistently lower than national averages at 0–8.6% for pharmacologic and 0.9–6.4% for non-pharmacologic groups. Notably, nitrous oxide was associated with a 0% opioid prescription rate at discharge. While opioid prescribing declined in our study, opioid ED administration varied with IV buprenorphine being associated with the lowest rate of opioid administration. Nonetheless, ED-ALT modalities proved effective across diverse and socially vulnerable patient populations, including those with housing instability, unemployment, and co-occurring substance use and mental health diagnoses. These findings support the feasibility, scalability, and clinical impact of implementing opioid-sparing pain management strategies in high-need urban emergency departments, underscoring their potential to shift standard care practices.

Poster #9

Do the associations of parental factors with early adolescents' alcohol expectancies vary as function of perceived friends' disapproval of alcohol use?

Authors: Nicole Lim, Nicole Kennelly, Shawn J. Latendresse, Margret Z. Powell, Tammy Chung, Carolyn E. Sartor

PI Name: Carolyn E. Sartor

While parental and peer influences on youth alcohol use are well established, their associations with alcohol expectancies (anticipated effects), a key precursor to use, remain understudied. This study examined the joint contributions of parental factors and friends' disapproval to early adolescents' positive and negative alcohol expectancies. Methods: Data were drawn from the Adolescent Brain Cognitive Development Study (n=9028; mean age=12.91; 15.08% Black, 22.98% Latinx, 61.94% White; 45.10% girl, 52.93% boy, 1.97% other gender). Expectancies were measured using the Alcohol Expectancy Questionnaire-Adolescent, Brief. Separate linear models tested individual interactions between each

parenting factor (parental monitoring, parental rules about alcohol, drinkers in the household) with perceived friends' disapproval of alcohol. Final models retained only significant interactions and were adjusted for demographics and youth alcohol use. Results: Positive expectancies model: A significant interaction between parents' rule-making and friend disapproval (p=0.005) emerged: rule-making was only associated with positive expectancies when friends did not disapprove. A buffering effect of rule-making was observed (β=0.264 vs. β=0.501). Associations also emerged for parental monitoring (β= 0.087, p<0.0001) and household drinkers (β=0.180, p<0.0001). Negative expectancies model: A significant interaction between household drinkers and friend disapproval (p=0.002) emerged: household drinking was only associated with negative expectancies when friends disapproved. Negative expectancies were higher in households without (β=0.235) vs. with drinkers (β=0.116). An association also emerged for parental monitoring (β=0.104, p<0.0001). Conclusion: Parental rules may mitigate risk associated with lack of friend disapproval for developing positive expectancies. The absence of household drinkers may amplify friend disapproval's promotive effect for negative expectancies.

Poster #10

The role of dopamine D2 receptors (D2Rs) in the lateral hypothalamus (LHA) circuitry

Authors: Brigitte M. González Olmo, Miriam E. Bocarsly

PI Name: Miriam E. Bocarsly

The LHA has been shown to increase feeding behavior by electrical stimulation, meanwhile lesion to LHA shown a decrease in feeding behavior, demonstrating a major key role of this specific brain region. Dopaminergic terminals found in the LHA belong to projections from dopamine cells found within hypothalamus and midbrain, and their function is mainly through D2Rs. It is important to understand the basic mechanism underlaying D2R function in the LHA circuitry involve in feeding behavior at the cellular and system level. For this study, we knockdown (KD) D2Rs in the LHA of female and male D2 flox mice (n=5-8) to characterize food intake, weight gain, metabolic parameters and locomotor activity. We found that KD D2Rs mice have a significant increase in weight gain. Using Promethion Metabolic Cages, we found that (1) KD D2Rs mice have a significant increase in food intake compared to gfp control mice, and (2) KD D2Rs mice have a significant decrease in total movement compared to gfp control mice. Further, we found significant impairment in KD D2Rs female and male mice in locomotor exploratory behavior measured with open field test. In addition, we found significant impairment in KD D2Rs female and male mice in spontaneous locomotor activity measured with infrared beams cages (Opto-M4). In conclusion, our study demonstrates the role of D2Rs in the LHA circuitry not only in feeding behaviors but also in locomotor activity.

Poster #11

Cocaine Reshapes the Gut Microbiota Influencing Addiction Vulnerability

Authors: Susana Delgado Ocaña, Guadalupe Herrera, Santiago Cuesta

PI Name: Santiago Cuesta

Addiction is a chronic, relapsing disorder characterized by compulsive drug use despite adverse consequences. Addiction and substance use disorders (SUDs) affect millions worldwide and cause substantial socioeconomic burdens. Unfortunately, current pharmacological and behavioral treatments

have limited success, highlighting the need for new therapeutics. In the past years, the gut microbiome has been associated with addiction. Growing clinical evidence shows alterations in the gut microbiota composition in patients with SUDs, as well as changes in the microbiome associated with the transition from sporadic to frequent drug use and from active consumption to withdrawal/treatment. However, whether these changes modulate disease or are just a consequence of another unrelated pathology remains poorly understood. Therefore, our goal is to determine how cocaine influences gut microbiome composition and to investigate the contribution of specific microbial members to addiction. Our data show that cocaine can change the commensal gut microbiota of wild-type male mice. Specifically, we found that 24 hours after the final cocaine injection in a 5-day sensitization protocol, animals exposed to this psychostimulant exhibited increased alpha diversity and a higher Firmicutes/Bacteroidetes ratio compared to saline-treated mice. We also revealed that a fecal microbiota transplant (FMT) using stool from mice previously exposed to cocaine can increase the vulnerability to develop addiction in naïve animals. Based on these data, using germ-free and antibiotic-treated animals, we are now assessing the capacity of specific microbial members to modulate addiction. Understanding these mechanisms will enable us to identify both host and microbial molecular targets for treating cocaine use disorders.

Poster #12

Alcohol dose-dependently inhibits striatal astrocyte calcium activity: Implications for behavior and an ongoing search for the mechanism

Authors: Cherish Ardinger, Anagha Kalekar, Maxwell Madden, Ananya Gunda, Arnav Patel, George Xanthos, Miriam Bocarsly, Rafiq Huda

PI Name: Rafiq Huda

The dorsal striatum (DS) is a key site for alcohol-induced neuroadaptations contributing to alcohol use disorder. Alcohol targets all brain cells, including astrocytes. We measured alcohol's effect on DS astrocyte calcium activity using in-vivo fiber photometry. We expressed calcium sensors with an astrocyte-specific promoter in C57BL/6J mice (gfaABC1D-GCaMP6f-lck, n = 11, labels membrane; and gfaABC1D-cyto-GCaMP6f, n = 4, labels cytoplasm). Mice were given intraperitoneal alcohol injections (0-2g/kg) and were placed in an open field for 30 minutes to record locomotion simultaneously with astrocyte calcium activity. Acute alcohol evoked a stimulant response in the first 5 mins, increasing locomotion. Alcohol significantly and dose-dependently decreased the number of astrocyte calcium events (both sensors). We then investigated alcohol's effect on local neuronal activity. D1-cre (n = 5) and A2a-cre (n = 3) mice received DS injections of pGP-AAV-Syn-Flex-jGCaMP8m to record calcium activity from D1 and A2a-expressing neurons, respectively, during open field testing. Preliminary data indicates no effect of acute alcohol on the number of calcium events in either neuronal cell type. In D1-cre mice, a significant dose-dependent decrease in calcium event prominence was observed. To begin to assess possible mechanisms of the alcohol-induced inhibition of astrocyte calcium activity, we are recording acetylcholine (ACh; n = 3) and norepinephrine (NE; n = 2) activity using GRAB sensors in the DS during open field testing. Preliminary data indicates that ACh, but not NE, is inhibited by alcohol. Ongoing work is characterizing if and how ACh plays a role in alcohol's inhibition of astrocytes.

Poster #13

Dose dependent kratom alkaloids effects on continuous heart rate monitoring and feeding behavior in obese mice.

Authors: Spencer Fields, Nicholas T. Bello

PI Name: Nicholas T. Bello

Kratom, a Southeast Asian plant long used for its stimulating and analgesic effects, is gaining attention for its bioactive alkaloids, particularly mitragynine and 7-hydroxymitragynine. These compounds, which interact with opioid and adrenergic systems, are currently under investigation for their ability to mitigate opioid withdrawal. However, their broader physiological effects are unknown, particularly in overweight/obese populations. This study evaluated acute impacts on heart rate, feeding behavior, and body temperature in normal weight and diet-induced C57Bl/6J obese mice. Micro-HRT telemetry loggers (Star-Oddi, Garðabær, Iceland) were surgically implanted for continuous cardiovascular and thermal monitoring, and the BioDAQ system (Research Diets, New Brunswick, NJ) was used to quantify food intake. Mice received intraperitoneal doses of vehicle (20% Tween-80, 80% DI water), 5.6 mg/kg mitragynine, 56 mg/kg mitragynine, and 1 mg/kg 7-hydroxymitragynine, with one-week washouts between doses. Dose*time interactions were observed for heart rate AUC across the 24-hour cycle ($p < 0.001$), with the most pronounced change following the 5.6 mg/kg mitragynine dose. In contrast, the highest dose (56 mg/kg mitragynine) significantly reduced caloric intake over 24 hours ($p = .031$), while other doses showed no clear feeding effects. No significant changes in body temperature were measured across doses. These findings reveal a non-linear relationship between alkaloid dose and physiological outcomes. Lower mitragynine doses markedly influenced heart rate, whereas higher doses suppressed food intake. The distinct dose-dependent effects highlight kratom's complex interaction with autonomic and metabolic systems—and signal the need for more nuanced exploration of its pharmacological profile.

Poster #14

Paternal Methamphetamine Increases Methamphetamine Motivation in Male Offspring

Authors: Rafael Solis Laybon, BaDoi N. Phan, Azadeh Jadali, Mateo Sarmiento Bustamante, Sharvari Mankame, Samantha J. Worobey, Shriya Satyavolu, Andreas R. Pfenning, Kelvin Y. Kwan, Ronald P. Hart, Sarah E. Swinford-Jackson, R. Christopher Pierce

PI Name: Christopher Pierce

Exposure to drugs of abuse has been increasingly linked to changes in offspring physiology and behavior. We previously demonstrated delayed acquisition of cocaine self-administration in male, but not female, progeny of cocaine-experienced sires. Here, we sought to determine whether this phenotype extended to methamphetamine. In contrast to cocaine, male methamphetamine-sired offspring acquired methamphetamine self-administration more rapidly than controls; there was no difference in methamphetamine taking between female methamphetamine- and saline-sired rats. Single nuclei RNA-sequencing of the nucleus accumbens identified differences in gene expression between naïve methamphetamine- and saline-sired offspring. Interestingly, expression of fibroblast growth factor 14 (Fgf14), a regulator of voltage-gated sodium and potassium channels, was decreased in the nucleus accumbens core of methamphetamine-sired male offspring compared to their saline-sired counterparts.

Specifically, in cells expressing dopamine D1 and/or D2 receptors, which was confirmed by qPCR and RNAscope. To evaluate functional relevance of this decrease in Fgf14 expression, naïve rats received intra-accumbens core delivery of a lentiviral vector containing either Fgf14 shRNA or a scrambled shRNA control. Methamphetamine intake was increased in rats with intra-accumbens Fgf14 knockdown relative to scrambled controls. These results indicate that sire methamphetamine exposure enhanced methamphetamine reinforcement.

Poster #15

Daily treatment of an orexin receptor antagonist with oxycodone preserves analgesia for chronic pain while attenuating subsequent opioid taking

Authors: Kimberly A. Newman, Jeff Cheng, Samad Arastu, Gary Aston-Jones

PI Name: Gary Aston-Jones

Prescription opioids are commonly used to treat chronic pain but can lead to dependence and development of opiod use disorder (OUD). Here, we sought to evaluate whether the clinically available dual orexin receptor antagonist suvorexant (suvo) could prevent the development of phenotypes indicative of OUD development, such as increased demand for opioids, while preserving the analgesic properties of prescription opioids in a rodent model of chronic pain. Male Long Evans rats were injected with Freund's Complete Adjuvant in the hindpaw and given 2wks of twice-daily oxycodone (oxy) treatment in conjunction with daily vehicle (n=11) or suvo (n=12). During treatment, rats were tested for signs of withdrawal during acute abstinence and for analgesia following oxy. We found that while oxy alleviated inflammatory pain, this was unaffected by daily suvo treatment (p>0.05). At the same time, daily suvo attenuated global withdrawal (p<0.01). Following cessation of oxy+suvo treatment, rats were allowed to self-administer fentanyl and were then trained on a within-session behavioral economics procedure to assess demand for fentanyl. Rats previously given suvo with oxy tended to self-administer less fentanyl (p=0.099). Further, compared to drug-naive rats, those given vehicle with oxy showed increased motivation for fentanyl self-administration, but this was prevented by daily suvo with oxy (drug naive vs. vehicle+oxy, p<0.05, drug naive vs. suvo+oxy, p>0.05). Together, these results indicate that daily suvorexant treatment attenuates the development of opioid dependence and/or key phenotypes of OUD while preserving the pain-relieving properties of prescription opioids. Therefore, dual orexin receptor antagonists may be able to be used in conjunction with prescription opioids for chronic pain to prevent development of dependence.

Poster #16

Mitragynine and insulin signaling under hyperglycemic conditions

Authors: Lamyaa Alsarkhi, Nicholas T. Bello

PI Name: Nicholas T. Bello

Kratom (Mitragyna speciosa) is a botanical from Southeast Asia used to manage pain and opioid withdrawal, but with reported effects on glucose metabolism. The bioactive alkaloid in kratom is mitragynine (MTG), which has agonist actions on opioid and adrenergic receptors. This study investigates the dose-dependent effects of MTG and morphine on blood glucose and insulin signaling, the impact of

repeated MTG on glucose metabolism and insulin sensitivity in diabetic mice, and the interaction between MTG and insulin. Methods: For the acute experiment, C57BL/6J male mice were divided into two feeding groups: Regular chow (RC) and High-Fat Diet (HFD; 60% fat). After 6 weeks, they received a single acute intraperitoneal (IP) injection of morphine (10 mg/kg), MTG (10 mg/kg), or vehicle. Blood glucose levels were recorded every 15 minutes, and tissues were collected 60 minutes post-injection. For the chronic experiment, after 12 weeks, RC and HFD C57BL/6J male mice received 150 mg/kg of streptozotocin (IP). By day three, both groups showed increased blood glucose levels, and then on day seven, they were treated daily with MTG (1-10 mg/kg) for one week. Plasma, hepatic, and pancreatic tissues were processed for glucose and insulin signaling. To assess the interaction between MTG and insulin during an acute high-dose injection, C57BL/6J male mice received a single acute intraperitoneal (IP) injection of insulin (5 U/kg), MTG (10 mg/kg), insulin (5 U/kg) + MTG (10 mg/kg), or vehicle. Blood glucose levels were recorded every 15 minutes, and tissues were collected 60 minutes post-injection. Results: In acute experiments, mitragynine (10 mg/kg) raised blood glucose, while morphine (10 mg/kg) decreased it; both reduced corticosterone levels. Mitragynine increased blood glucose; morphine did not. In chronic experiments, low-dose MTG (1 mg/kg) improved glucose levels in the RC group; high doses were effective in the HFD group. Liver function improved, as indicated by lower ALT levels, and IL-6 levels decreased, suggesting anti-inflammatory effects. Combining insulin with high-dose mitragynine caused severe hypoglycemia and boosted insulin signaling in the hindbrain nucleus tractus solitarius (NTS) after 60 minutes. Conclusions: The dose-dependent effects of mitragynine are not well understood. MTG effects vary with dose and diet, acutely increasing glucose levels independently of corticosterone or insulin. At the same time, chronic treatment improves glycemia and liver function. A decrease in IL-6 suggests a potential anti-inflammatory effect. Overall, mitragynine may enhance metabolic outcomes in hyperglycemic conditions through insulin-independent and stress-neutral pathways.

Poster #17

Oprm1 Alternatively Spliced Variants Regulate Opioid-Induced Respiratory Depression in Key Brainstem Respiratory Centers

Authors: Ayma F. Malik, Raymond Chien, Jin Xu, Vipin Rai, Kimia Didehvar, Ying-Xian Pan
PI Name: Ying-Xian Pan

Opioid-induced respiratory depression (OIRD) is one of the leading causes of opioid overdose deaths and is primarily mediated through mu opioid receptors. The mu opioid receptor gene, OPRM1, undergoes extensive alternative splicing to generate numerous variants, which can be categorized into (1) exon 1-associated (E1-variants), mostly composed of full-length 7-transmembrane (TM) C-terminal variants, and (2) exon 11-associated variants (E11-variants), mainly truncated 6TM variants. Our previous studies have shown that both E1-variants and E11-variants play a significant role in OIRD, with differences among mu opioids and sexes. However, the specific brain regions where these receptors are involved in OIRD remain unknown. The current study focuses on unraveling the role of E1-variants and E11-variants in two key brain regions known to regulate breathing, the preBötzinger Complex (preBötC) and Parabrachial Nucleus (PBN), on OIRD using rat conditional knockout models. Here, we disrupt E1-variants or E11-variants in the preBötC or PBN or both by using AAV-Cre microinjection and examine how disruption of E1-variants and E11-variants in these brain regions influence OIRD using whole-body plethysmography.

Our data indicates that the E1-variants and E11-variants differentially regulate breathing patterns in region-specific, mu opioid-specific and sex-specific manners, providing novel insights into the mechanisms underlying the role of E1-variants and E11-variants in OIRD.

Poster #18

Examining the Effectiveness of Transcranial Current Stimulation (tDCS) in Reducing Drug Craving Among Individuals with Methamphetamine Use Disorder (MUD)

Authors: Amy Morales, Zeeshan Ahmed, Onumaraekwu Opara, Tammy Chung

PI Name: Tammy Chung

Methamphetamine use disorder (MUD) is a chronic and relapsing condition that affects millions worldwide, often leading to serious cognitive, behavioral, and neurological consequences. Despite its growing impact on public health, effective treatment options remain limited, and many individuals struggle with repeated relapse. Transcranial direct current stimulation (tDCS) is a new, cost-effective, non-invasive brain stimulation technique that delivers low electrical currents to modulate neural activity, particularly in regions like the right and left dorsolateral prefrontal cortex (DLPFC), which are involved in craving and executive function. Recent studies suggest that tDCS may help reduce drug craving in individuals with MUD, offering a potential new alternative to traditional treatment approaches. As interest in neuromodulation-based interventions grows, it is critical to evaluate existing evidence on the effectiveness of tDCS in this population to inform future clinical research and guide more targeted, brain-based treatments.

Poster #19

Marijuana Use in Autistic Youth Is Associated with Anxiety, Depression, and Emotion Dysregulation

Authors: Elena Chauhan, Xiangyu Tao, Kelli Bradley, Anthony Spirito, Casey Cragin, Stephen Sheinkopf, Kristina Jackson

PI Name: Kristina Jackson

Marijuana usage among youth with autism spectrum disorder (ASD) and its impact on mental health has been overlooked. Limited studies with ASD participants illustrated links between therapeutic marijuana use and decreased depression and anxiety symptoms; yet studies examining recreational marijuana use showed associations with increased psychotic symptoms. Across the literature, discoveries related to additional aspects of mental health for ASD youth who use marijuana are scant. This poster examined the associations between marijuana use and depressive symptoms, perceived stress, and emotional reactivity among n = 358 ASD youth (Mage = 19.37, SD = 3.63, 50.8% male-at-birth, 88.6% non-Hispanic White). Self-reported measures included the PROMIS Depression Scale, Perceived Stress Scale, and Emotional Reactivity Scale, and a single item on lifetime marijuana use where 34.7% indicated yes to ever using marijuana. Three independent-samples t-tests were conducted. Results demonstrated a significant difference between ASD youth who have used marijuana and those who have not for each measure. Specifically, ASD youth who used marijuana displayed higher scores for all scales indicating greater levels of depression, perceived stress, and emotional reactivity associated with negative outcomes and dysregulation. Findings suggest a potential mental health risk associated with marijuana use in ASD youth. Clinicians may want to direct their attention to marijuana use when assessing the mental.

Poster #20

Behavioral Economic Demand for Alcohol and Cannabis Among Student and Non-Student Emerging Adult

Authors: Meylin Chicas, Michael Amlung, Sarah Weinsztok

PI Name: Sarah Weinsztok

Behavioral economics conceptualizes substance use as behavior patterns influenced by environmental constraints. Behavioral economic demand is assessed via purchase tasks, which quantify a commodity's value as a function of its cost. While substance demand has been explored among emerging adults (EAs), a group at high risk for developing substance-related problems, research is needed to understand how consumption patterns differ between student and non-student EAs. Our study aimed to explore alcohol and cannabis demand across student and non-student EAs and to measure associations of use context on demand. Participants aged 18-25 who reported alcohol use were crowdsourced from Prolific, completing alcohol and cannabis purchase tasks, measures of substance use severity, and stated contexts in which substance use was most frequent (social/solitary/even mix). Of 270 participants (47% student, 53% non-student, avg age=23.1, 54% F), 192 (71%) endorsed cannabis use. No significant differences were observed between groups for alcohol or cannabis demand. Students were more likely to endorse mostly solitary or social cannabis use, while non-students were more likely to use cannabis in a mix of contexts. Alcohol use in social contexts was high for both groups, but higher among students. Results show similarities in substance demand across students and non-students but differences in use contexts, which have important implications for behavioral interventions for substance use among EAs.

Poster #21

Investigating Underage Alcohol Consumption and Academic Performance in Individuals with Autism Spectrum Disorder

Authors: Mariella Vargas, Xiangyu Tao, María Eugenia Contreras Pérez, Kelli Bradley, Casey Cragin, Anthony Spirito, Stephen Sheinkopf, Kristina Jackson

PI Name: Kristina Jackson

Underage alcohol use is common amongst students and is a public health problem. Research has shown that in the general population, students with lower alcohol use have better academic performance than students who use alcohol. There has been growing interest in studying alcohol use among youth with autism spectrum disorder(ASD), and the connection between alcohol use and other areas of functioning, such as academic performance. This study investigated how underage alcohol use is associated with academic performance in students with ASD. A subsample of participants under age 21(n= 141,Mage= 16.4,62.4% Male)was taken from a parent study with participants ages 12–24 diagnosed with ASD. Drinking behaviors were assessed through self-report, indicating if participants had ever consumed a sip of alcohol, a full alcoholic drink, or never consumed alcohol, and academic performance was assessed with a variable that measured GPA, reporting if they had (1)mostly As,(2)mostly Bs, and(3)mostly Cs or lower. A chi-square test was run to examine if there was a significant relationship between underage drinking and academic performance. Half(52.5%)reported having mostly As, and less than half(44.6%)reported drinking. The chi-square test showed no significant association between average

grades and drinking behavior, $\chi^2(4)= 2.04$, $p= .728$. While prior work links underage drinking to academic performance, this study found no such link; future research should examine autistic youth with lower GPAs.

Poster #22

Association Between Family Functioning and Lifetime Cannabis Use Among Autistic Adults

Authors: Brinda Pusuloori, María Eugenia Contreras Pérez, Xiangyu Tao, Kelli Bradley, Casey Cragin, Anthony Spirito, Stephen Sheinkopf, Kristina Jackson

PI Name: Kristina Jackson

In the United States, approximately 42% of adults aged 19-30 reported cannabis use in 2023. While research on substance use among individuals with Autism Spectrum Disorder(ASD)is mixed, some studies suggest that individuals with ASD might engage in cannabis use to reduce symptom severity(e.g. self-injurious behavior, sleep problems, anxiety). However, the role of contextual factors like family functioning in cannabis use remains underexplored. In neurotypical populations, poor family functioning is linked to greater substance use risk. This poster examines whether perceived family functioning influences cannabis use in adults diagnosed with ASD. Using a subsample from a parent study, this poster examines the association between the McMaster Family Assessment Device, which measures an individual's perception of their family and cannabis use, assessed with a binary variable indicating lifetime use. A binary logistic regression was conducted to examine this relationship. Sex at birth and age were also used as covariates. The overall model was statistically significant($\chi^2(3)=36.83$,p<.001)and explained 19.4% of the variance. Poorer family functioning was significantly associated with greater odds of reporting lifetime cannabis use. Male sex at birth was also significantly associated with greater odds. Age was marginally significant. These findings suggest that clinicians working with autistic adults should assess family dynamics as a potential risk factor for cannabis use.

Poster #23

Examining Associations between Externalizing Disorders and Emotion Regulation Strategies among Adolescents

Authors: Stephanie Cisne, Leigh Lustig, Sarah J. Brislin

PI Name: Sarah J. Brislin

Emotion regulation strategies are vital in shaping externalizing behaviors during adolescence. This study explored the relationships between cognitive reappraisal and expressive suppression, measured using the Emotion Regulation Questionnaire (ERQ), and externalizing symptoms reported by parents via the Child Behavior Checklist (CBCL). Adolescents who used cognitive reappraisal generally showed fewer externalizing problems, while those relying on suppression had more behavioral issues. Notably, males showed higher levels of externalizing symptoms overall. However, females with higher ADHD symptoms reported the highest levels of suppression. This sex-specific pattern suggests that emotional suppression may worsen behavioral challenges in girls more than in boys. There was no evidence of any other differences in the relationships between ERQ and CBCL scores across sexes. These results highlight the complex connection between emotion regulation and behavioral outcomes, emphasizing the need for

interventions that consider both developmental stages and gender to improve emotion regulation and reduce externalizing problems in youth.

Poster #24

The effects of alcohol on excitatory and inhibitory neuron activity dynamics in the prefrontal cortex

Authors: Molly Saunders Lucy, Vyochana Mamillapalli, Esther Y. Ko, Rafiq Huda

PI Name: Rafiq Huda

Acute alcohol intoxication can impair cognitive function by altering prefrontal cortex (PFC) activity. The anterior cingulate cortex is a subregion of the PFC involved in motivation, reward, and arousal. Local GABAergic interneurons modulate cortical activity, but alcohol's impact on inhibitory neuron subtypes and their interaction with excitatory neurons in the ACC remains unclear. Previous work showed that alcohol increases synchrony among vasoactive intestinal peptide-expressing interneurons. Using in vivo two-photon calcium imaging, this study examines the effect of alcohol on different neuron subtypes in the ACC: pyramidal, vasoactive intestinal peptide (VIP), somatostatin (SOM)-expressing, and parvalbumin (PV)-expressing neurons. Mice were injected with adeno-associated viruses expressing GCaMP8s under the synapsin promoter to label all neurons and Cre/Flp-dependent viruses expressing GCaMP6s for labeling interneurons. A chronic imaging window and headplate were implanted above the ACC for optical access and head fixation. ACC pyramidal neurons showed minimal changes in activity even with high doses of alcohol, while VIP and PV neuron activity decreased with alcohol. These results suggest that GABAergic neurons may be modulating their activity in the presence of alcohol to allow pyramidal neurons to maintain a net excitatory output. Future experiments will examine the effect of toxin-mediated ablation of interneuron subtypes on pyramidal neuron activity in the presence of alcohol.

Poster #25

Exploring the impact of assessment design on clinical trial attrition rates and dropout rates

Authors: Gladys Paulino Moreno, Denise A. Hien, Marilyn L. Piccirillo

PI Name: Marilyn L. Piccirillo

Participant attrition is a common problem in longitudinal and mental health studies, often limiting the validity and impact of study findings. Previous research has shown that both individual characteristics (e.g., age, depression) and study design factors (e.g., study duration) influence dropout rates. This project investigates the impact of assessment design on attrition and identifies ways researchers can design more effective studies to keep participants engaged. Objective: An individual participant meta-analysis of clinical trials for PTSD-SUD will be conducted to determine if longer, more frequent, or more complex assessments lead to increased attrition. Methods: We aim to analyze 10 datasets (k = 10, N=1500). Participants were assigned a 12-week intervention (e.g., psychotherapy, pharmacotherapy, or placebo medication). Multilevel methods will be used to analyze the relationship between assessment length, frequency, and complexity (i.e., number of topics assessed) and study attrition (i.e., number of missed sessions). Results: We anticipate that our findings will demonstrate that higher participant burden leads to greater study attrition. For example, we expect that more frequent timepoints may be associated with higher attrition, whereas shorter or less complex assessments may be associated with lower attrition. Discussion: This project will investigate the impact of study design on clinical trial attrition. Understanding

the relationship between study design and attrition can help researchers design studies that improve retention and data quality. Changes to assessment design may also enhance the overall research experience for participants, strengthening their engagement in ongoing care or symptom monitoring, ultimately improving health outcomes.

Poster #26

Impact of gut neurotransmitter levels on cocaine addiction

Authors: Jacqueline Strickland, Susana Delgado Ocana, Christopher Whidbey, Dhara Shah, Santiago Cuesta

PI Name: Santiago Cuesta

Cocaine addiction is associated with alterations in the gut microbiome, highlighting a bidirectional communication between gut bacteria and the brain. Cocaine blocks dopamine reuptake, leading to elevated synaptic dopamine levels and reinforcing drug-seeking behavior. Dopamine is synthesized from L-tyrosine via L-DOPA and serves as a precursor for other neurotransmitters. Gut bacteria can produce and metabolize neurotransmitters, and these microbial activities have been linked to changes in brain function and behavior. However, it remains unclear whether such changes influence addiction vulnerability and through what mechanisms. To investigate this, we engineered the probiotic Lactobacillus gasseri to express tyrosine decarboxylase (tdc), an enzyme that converts tyrosine into tyramine, thereby reducing tyrosine and dopamine levels in the gut. This strain was used to reconstitute antibiotic-treated mice, which were then assessed for addiction-like behaviors using locomotor sensitization and conditioned place preference (CPP) paradigms. Our data indicate that increased microbial utilization of tyrosine leads to significant alterations in cocaine CPP, suggesting that gut neurotransmitter dynamics can modulate cocaine reward sensitivity.

Poster #27

Gene-Environment Interplay in Alcohol Problems: Evidence from Candidate Gene, Genome-wide Association, and Family Designs

Authors: Fatima Hijazi, Gabrielle Heffernan, Sandra Lee, Genevieve Dash, I-Tzu. Hung, Jessica Salvatore, Erin Lumpe

PI Name: Jessica Salvatore

It is well established that both genetic and environmental influences confer risk for alcohol use disorders (AUD), which affect approximately 10% of US individuals each year. These factors also intersect to influence the development of AUD. This review systematically examined gene-environment (GE) interplay, including both correlation (rGE) and interaction (GxE), in alcohol problems. Methods: We conducted a systematic review of studies indexed in PubMed and PsycINFO that examined GE interplay on alcohol problems across development using candidate gene, genome-wide association, and twin/family designs. Independent reviewers screened 2,397 studies in accordance with PRISMA guidelines using Covidence, an online systematic review software. Results: Ninety-eight studies met inclusion criteria. There was evidence that genetic predispositions to alcohol problems are associated with social environments (exposure to traumatic events and lower church attendance) and higher peer delinquency (rGE). Furthermore, there was evidence that interpersonal (social support and romantic partnership) and

family (parenting style, childhood adversity, socioeconomic status, parental divorce/discord) environments, as well as peer substance use and neighborhood alcohol availability, moderated associations between genetic predispositions and alcohol outcomes (GxE). Broadly, results aligned with the diathesis-stress model suggesting that adverse environments amplify genetic risk for alcohol problems. Conclusion: These findings highlight the importance of integrating genetic and environmental factors when designing and implementing AUD intervention and prevention programming. A key limitation of GE interplay literature is the historic focus on younger developmental periods. Future research may leverage longitudinal designs to clarify how changing environments shape genetic risk for alcohol problems across the lifespan.

Poster #28

Substance Use Treatment and Overdose Patterns in High and Low Social Vulnerability Counties: A Trends Analysis in New Jersey from 2014 – 2022

Authors: Lara V. Fougnies, Alyssa M. Juntilla, Sarah E. Cooper, Holly H. Lister, Katie Hilton, Jamey J. Lister

Introduction. This study investigates substance use treatment admissions and overdose trends (2014–2022) across New Jersey counties. Using the Social Vulnerability Index (SVI), we examined how county-level vulnerability differentiates treatment utilization and overdose outcomes. Methods. We created a novel, longitudinal dataset using multiple public sources for 21 New Jersey counties. Outcome measures included substance use treatment admissions, opiate-specific treatment admissions, overdose deaths, and naloxone administration. Counties were categorized as either high (n=10) or low (n=11) SVI status. Joinpoint analysis identified significant trends (p<0.05) over time and differences by SVI. Results. Significant upward initial trends in annual percent changes (APCs) were observed for all outcome measures, regardless of SVI, followed by plateaus or declining trends in latter segments. High SVI counties demonstrated greater APC magnitudes for all outcome measures in initial segments, similar APCs in latter segments, and higher baseline and peak rates. Conclusions. County-level SVI status is a meaningful metric to identify risk for substance use and overdose patterns. High vulnerability counties exhibit consistently greater burdens than low vulnerability counties. Findings highlight a need to expand substance use services along the continuum of care in vulnerable areas and suggests SVI as a viable tool for planning and expansion efforts.

Poster #29

A scoping review of psychosocial factors affecting racial/ethnic disparities in access and utilization of medication treatment for opioid use disorder in the United States

Authors: Dania Lerman, Kenzie Potter, Michael J. Broman, Jamey J. Lister

Background. Medications for opioid use disorder (MOUD) effectively treat OUD, but are under-utilized by racial/ethnic minorities (R/EMs) in the US. We conducted a novel scoping review of psychosocial factors affecting MOUD access/utilization among R/EMs. Methods. Literature was gathered, screened, and analyzed (5/2024–4/2025) using software and reputable databases. Study inclusion criteria were 1) published in >1999 (i.e., post opioid epidemic), 2) conducted in the US, 3) presented empirical data relating to OUD treatment, 4) involved racial/ethnic disparities, comparisons, and/or race-specific findings, and 5) assessed psychosocial factor(s) contributing to disparities. Tabulations were coded for

R/EM study population(s), MOUD type, and psychosocial factor type. Findings. Abstracts (N=1960) were screened by four reviewers. After full-text review, 43 articles were retained. Most focused on Black/African American (n=35, 81.4%) and Hispanic/Latine (n=23, 53.5%) populations, whereas few focused on other R/EMs. Most examined buprenorphine (n=26, 60.5%) or methadone (n=17, 39.5%), while few examined MOUD broadly (n=10, 23.3%) or naltrexone (n=4, 9.3%). The most common psychosocial factors affecting disparities were treatment proximity (n=13, 30.2%), housing (n=9, 20.9%), and acceptability of MOUD (n=9, 20.9%). Conclusions. We recommend clinicians, researchers, and policymakers consider these findings to address disparities to care.

Poster #31

A Sexual Minority Patient Population Profile to Guide Residential Addiction Care: A Comparative Examination of Treatment Needs with Heterosexual Patients

Authors: Jamey J. Lister, Andrew H. Kim, Liam Kerrick, Blair N. Singer, Victoria Wong Murray, Scott Stevens, Richard T. Jermyn

Background. Sexual minorities are at higher risk for substance use consequences compared to heterosexual populations. Less is known about factors that differentiate risk. This study aimed to identify population-specific factors. Methods. Data was collected (January 2023–December 2024) from 313 patients enrolled in a federal project implementing care coordination for behavioral health at a state-licensed residential addiction treatment center. Analyses included descriptive statistics and multivariable logistic regression. Results. The sample was equivalently composed of men (n=158, 50.5%) and women (n=151, 48.2%). Enrollment targeted three race/ethnic groups (non-Hispanic White: n=172, 55.0%; Black/African American: n=98, 31.3%; Hispanic/Latino: n=42, 13.4%). Sixty-two patients (19.8%) reported sexual minority status, the most common of which were bisexual (n=32, 51.6%), gay (n=14, 22.6%) and lesbian (n=10, 16.1%). The multivariable logistic regression indicated the following best differentiated sexual minorities: HIV-positive status, female gender, greater pre-treatment substance use, younger age, fewer days struggling with controlling violent behavior, lower relationship satisfaction, and lower mutual support group participation (ps<0.05). Discussion. This study provides population-specific information to improve treatment planning for sexual minority patients in addiction care. We recommend clinical directors, intervention developers and researchers consider these findings.

Poster #32

Pathways 2 Recovery: A Partnership Between Rutgers and the NJ Department of Labor

Authors: Jennifer Sorensen, Kelley Hamilton, Patricia Dooley-Budsock, Nina Cooperman,

Pathways 2 Recovery is a statewide initiative designed to help individuals impacted by the opioid epidemic find and maintain long-term employment. Since 2019, Rutgers RWJ Medical School (Addiction Psychiatry Division) and the New Jersey Department of Labor and Workforce Development have partnered to evaluate the program and provide resources and technical assistance to organizations helping people impacted by substance use, people in recovery, and employers. This presentation will provide an overview of key program resources, including the Pathways 2 Recovery website, toolkit, and training materials. The Pathways 2 Recovery website includes curated resources for individuals in recovery and employers, contact information for service providers, as well as testimonials of individuals

in recovery and success stories. The toolkit addresses workforce stigma, promotes inclusive hiring, and guides employers in creating supportive workplace environments for individuals in recovery. Additionally, we will review a new initiative to credential Recovery Friendly Workplaces (RFWs) across New Jersey. This program aims to create a statewide network of healthy, safe, and stigma-free workplaces. To become a Recovery Friendly workplace, businesses and employers must complete a brief application and a series of virtual training modules.

Poster #33

Prevalence of Substance Use During Pregnancy in New Jersey: Investigating the effects of COVID-19 and cannabis legislation

Authors: Abigail Gulchin, Jiawen Zhao, Megan Cooke, Sally Kuo, and Jessica Salvatore

Substance use during pregnancy poses significant health risks for both mothers and infants and has increased in recent years. Emerging evidence suggests that external societal events, such as the COVID-19 pandemic and cannabis legalization, may influence maternal substance use patterns. We utilize comprehensive administrative birth record data to examine these associations at the population level. We examined trends in prenatal substance use (alcohol, tobacco, and other substance) in NJ using birth certificate data from January 2016 to June 2021 (N = 566,568). Segmented logistic models evaluated changes in substance use odds around two events: the declaration of the COVID-19 public emergency (Mar. 1, 2020) and the recreational cannabis legalization (Jan. 1, 2021). All models were adjusted for maternal age, race/ethnicity, education, and employment. Alcohol and other substance use increased significantly after the COVID public emergency declaration, while tobacco use decreased. Those changes corresponded to an estimated 804 and 157 additional babies exposed to prenatal alcohol and other substance use, and 189 fewer exposed to prenatal tobacco, in the year following the declaration. The effects of cannabis legalization could not be statistically separated from those of the pandemic. The COVID-19 pandemic was associated with significant shifts in prenatal substance use trends in NJ, but cannabis legalization could not be distinguished from the effects of the pandemic.

Poster #34

Family Environment Moderates the Association between Genetic Liability and Externalizing Behaviors in Late Childhood

Authors: Leigh Lustig, Maia Choi, Sally Kuo, Holly Poore, Peter Barr, Fazil Aliev, Danielle M. Dick, Sarah J. Brislin, Maia Choi, Peter Barr

Externalizing behaviors emerging during childhood are associated with increased risk for mental health and behavioral problems including substance use disorders, delinquency, and aggression. Evidence from twin studies has found that parenting and family environment moderate genetic risk associated with externalizing behaviors. This study used data from the Adolescent Brain Cognitive Development (ABCD) study (Release 5.1; N = 10,595) to examine the extent to which family environment moderates the association between genetic liability and externalizing behaviors in late childhood (age 9). Linear mixed effects models, nested by site and family, were used to examine associations between family environment, externalizing polygenic scores (EXT PGS), and externalizing behavior measured via the parent report Child Behavior Checklist (CBCL). We also examined the interaction between family

environment and EXT PGS in predicting CBCL Externalizing scores. Higher EXT PGS were significantly associated with higher rates of family conflict, lower parental warmth, and higher CBCL Externalizing scores. Also, the association between the EXT PGS and CBCL Externalizing was significantly moderated by family conflict, such as that youth with high EXT PGS scores and exposed to high levels of family conflict also scored higher on CBCL Externalizing. These findings highlight the importance of family environment as a mechanism through which genetic risk for externalizing behavior may be mitigated.

Poster #35

Corticosterone Levels as Predictor of Future Cocaine Consumption Following Fear Conditioning in Male Rats

Authors: Renee T. Goga, Olivia L. Taylor, Justin Yazigi, Harsh Rohilla, Tyler J. Sacko, Akhil Sharma, Matthew T. Rich, R. Christopher Pierce

Externalizing behaviors emerging during childhood are associated with increased risk for mental health and behavioral problems including substance use disorders, delinquency, and aggression. Evidence from twin studies has found that parenting and family environment moderate genetic risk associated with externalizing behaviors. This study used data from the Adolescent Brain Cognitive Development (ABCD) study (Release 5.1; N = 10,595) to examine the extent to which family environment moderates the association between genetic liability and externalizing behaviors in late childhood (age 9). Linear mixed effects models, nested by site and family, were used to examine associations between family environment, externalizing polygenic scores (EXT PGS), and externalizing behavior measured via the parent report Child Behavior Checklist (CBCL). We also examined the interaction between family environment and EXT PGS in predicting CBCL Externalizing scores. Higher EXT PGS were significantly associated with higher rates of family conflict, lower parental warmth, and higher CBCL Externalizing scores. Also, the association between the EXT PGS and CBCL Externalizing was significantly moderated by family conflict, such as that youth with high EXT PGS scores and exposed to high levels of family conflict also scored higher on CBCL Externalizing. These findings highlight the importance of family environment as a mechanism through which genetic risk for externalizing behavior may be mitigated.

Poster #37

Assessing the Impact of a Multidisciplinary Intervention on Buprenorphine Administration and Naloxone Distribution in the ED for Patients Following Opioid Overdose

Authors: Alexis LaPietra, Gina Bucci, Reyna Maybloom, Brittany Simon, Jessica Perez-Ng, Elliott Liebling, Connie Greene, Sasha Condas, Christopher Freer, Danielle Dick, Dr LaPietra, G Bucci, R Maybloom, B Simon, J Perez-Ng, E Liebling, C Greene, S Condas,

Background: Patients with opioid use disorder (OUD) rarely receive comprehensive, evidence-based care when presenting to the emergency department (ED), including medications for OUD (MOUD), peer recovery support, and harm reduction tools. Despite the ED's potential to engage patients with OUD, infrastructure gaps, stigma, and insufficient education create barriers to effective care delivery. Objective: To determine whether a multidisciplinary collaboration involving providers and peer recovery specialists, an incentivized buprenorphine quality metric for physician, and monthly naloxone distribution goals could enhance buprenorphine utilization and harm reduction support for opioid overdose patients

discharged from the ED. Methods: A retrospective review was conducted across a 12-hospital system in New Jersey. Data were collected from January–December 2022 (pre-implementation) and June 2023–December 2024 (post-implementation) for patients aged 18 and older discharged from the ED who received naloxone in the field or the ED. Peer recovery specialists were available 24/7. Monthly reports on buprenorphine utilization and take-home naloxone (THN) kit distribution were shared with ED and peer leadership, accompanied by technical assistance. Chart reviews ensured data integrity and supported ongoing improvements. Results: In 2022, only 1.0% of 1,051 eligible patients received buprenorphine and 19.3% received THN kits. Post-implementation, 51.7% of 1,083 patients received buprenorphine and 84.7% received THN kits.Conclusions: A multidisciplinary, metrics-driven approach paired with staff education and leadership support substantially increased buprenorphine utilization and naloxone distribution. These findings highlight the potential of system-level interventions to improve ED-based care for OUD, though continued efforts are needed to address bias, expand capacity, and sustain impact.

Poster #38

Food Is Medicine: Delivering Medically Tailored Meals to Address Health Disparities at the Intersection of HIV and Substance Use

Authors: Walter Okoroanyanwu, Ethan Cowan

Background: The Food is Medicine (FIM) movement promotes the use of Medically Tailored Meals (MTMs) as a clinical tool to prevent and manage diet-related diseases. Individuals affected by both HIV and substance use disorders face compounding health disparities—malnutrition, diabetes, cardiovascular disease, poor wound healing—and are disproportionately affected by social determinants such as poverty, homelessness, and food insecurity. Intervention: This project proposes the integration of MTMs and dietary prescriptions into care plans for people with HIV and substance use disorders, particularly those in unstable housing or community-based recovery settings. MTMs may be delivered through crisis centers, prevention hubs, or directly to homes as part of a comprehensive, stigma-free harm reduction model. Evidence: Research shows that MTMs can lead to: > A 32% reduction in healthcare costs > A 63% reduction in hospitalizations > A 50% improvement in medication adherence in populations with HIV. Community FoodBank NJ, HELLO-FRESH, God's-Love-We-Deliver and City-meals-on-Wheels serve as scalable models for implementation. The intervention aligns with the current growing policy momentum around FIM at the state and federal level. Relevance: This approach addresses the clinical, preventive, and recovery dimensions of the overdose crisis. By embedding nutrition services into substance use care, MTMs provide a bridge to engagement, recovery, and long-term health stabilization. Learning Objectives: 1. Describe how poor nutrition and food insecurity contribute to disease burden among people with HIV/SUD. 2. Evaluate the role of MTMs in improving health outcomes and care engagement. 3. Identify best practices for implementing MTMs in community and clinical settings.

Poster #39

Mu-Opioid Receptor Signaling in the Habenula Modulates Ethanol Consumption and Vulnerability to Alcohol Use Disorder

Authors: Wanhong Zuo, Jiang-Hong Ye

Variability in alcohol consumption and risk for Alcohol Use Disorder (AUD) may stem from differences in endogenous opioid signaling. The μ-opioid receptor (MOR), particularly within the habenula—a key node in aversion and reward processing—has emerged as a potential modulator of drinking behavior. This study investigates how MOR activity in the habenula influences ethanol-induced neuronal responses and behavioral outcomes. Using adult C57BL/6 mice, we identified low (LAD) and high alcohol-drinking (HAD) phenotypes. LAD mice exhibited higher basal firing rates in habenula neurons, which inversely correlated with ethanol intake. Acute ethanol inhibited habenula activity and induced conditioned place preference (CPP) in HAD mice, but excited habenula neurons and produced conditioned place aversion (CPA) in LAD mice. These effects were reversed by the MOR antagonist CTAP and mimicked by the agonist DAMGO. Genetic knockdown of habenular MORs via Oprm1 shRNA or AAV5-cre-GFP in Oprm1^fl/fl mice increased neuronal firing, reduced ethanol consumption and anxiety-like behaviors, and shifted ethanol-induced CPP to CPA. HAD mice showed elevated β-endorphin levels and increased MOR phosphorylation at Thr370. These findings suggest that enhanced β-endorphin/MOR signaling suppresses habenula activity and promotes ethanol preference, contributing to AUD vulnerability. Targeting MOR-expressing habenula circuits may offer a novel strategy for personalized AUD treatment.

Poster #40

Day-level association of depression/anxiety, and cannabis and alcohol co-use among Black sexual/gender minoritized (BSGM) people

Authors: Yen-Tyng Chen, John A. Schneider, Ellen Almirol, Ella Remund Wiger, Jimi Huh, Tammy Chung, Jade Pakas-Bather, Dustin T. Duncan, Justin Knox

Background: Black sexual/gender minoritized (BSGM) people endure long-standing disparities in stigma and mental health. Cannabis and alcohol are the most commonly used substances among BSGM, and the co-use of these two substances has continued to rise. However, little is known about cannabis/alcohol co-use and its mental health correlates, particularly among BSGM. We examined associations between depression/anxiety and cannabis/alcohol co-use among BSGM. Methods: Data were drawn from the Neighborhoods and Networks Part 2 Study of 16-35-year-old BSGM in Chicago (n=617; 2022-2024). Daily use of cannabis and alcohol and mental health were assessed via a 14-day ecological momentary assessment (EMA). Daily cannabis and alcohol use was categorized into alcohol-only use, cannabis-only use, and cannabis/alcohol co-use. Random effect multinomial logistic regression analyses were performed. Results: Cannabis/alcohol co-use, cannabis-only use, and alcohol-only use occurred on 19.8%, 36.5%, and 6.3% days, respectively. Participants reported elevated depression/anxiety on 20.9% of the prompted days. On days when participants reported mild (aRR=1.48 95% CI: 1.18-1.86) or moderate (aRR=1.88 95% CI: 1.41-2.50) levels of depression/anxiety, they were more likely to report cannabis and alcohol co-use vs. no substance use. Similarly, when we compared co-use vs. single substance use (cannabis-only or alcohol-only use) days, moderate level of depression/anxiety was associated with more co-use vs.