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SCIENTIFIC MEETING GUIDE

MUSC Addiction Sciences Division

Diversity in Addiction Research Training (DART)

presents the

2023 Summer Research Day

In Person at the MUSC Institute of Psychiatry
Virtually on Zoom

Friday, July 28th, 2023
10:00am-12:30pm EDT

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VIRTUAL MEETING INFO

Joining Us Online?

Visit our website, www.musc.edu/DART and register to join. You will receive an email with the Zoom link.

QUESTIONS? TROUBLE ACCESSING?

Contact bellog@musc.edu

DART

DIVERSITY IN ADDICTION RESEARCH TRAINING

AGENDA

Friday, July 28, 2023

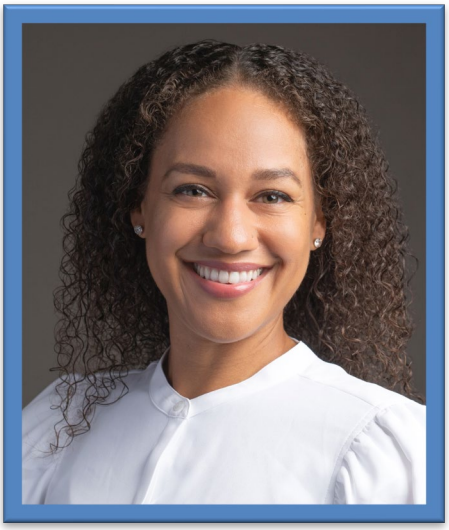
10:00-11:00am || Keynote Speech

11:00-12:30pm || Poster Presentations

Keynote : Virtually on Zoom or In-Person at the MUSC IOP Auditorium

Poster Presentations : In-Person at the MUSC IOP Lobby

KEYNOTE ADDRESS



Angela Haeny, Ph.D.
Yale University

Considerations for Improving Treatment for Substance Use Disorders among Black Adults

Friday, July 28, 2023
10:00 AM EDT – 11:00 AM EDT

Dr. Angela Haeny is an Assistant Professor of Psychiatry, licensed Clinical Psychologist, and Director of the Racial Equity and Addiction Lab (REAL) at Yale School of Medicine. Dr. Haeny is committed to eliminating racial disparities and enhancing diversity, equity, and inclusion. Her research investigates effective alcohol and drug treatments among individuals underrepresented in substance use research with a focus on Black adults. Her research also identifies understudied risk factors for substance use and problems especially salient to Black people. Currently, Dr. Haeny's research is focused on targeting racial stress and trauma and other relevant constructs to improve addiction treatment outcomes, retention, and satisfaction among Black adults. This work is funded by a 5-year NIH/NIAAA career development award.

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Medical University of South Carolina College of Medicine student
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#7 || **Three-week rTMS does not affect white matter integrity in smokers: A preliminary finding with Diffusional Kurtosis Imaging**
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ABSTRACTS

POSTER #1

Unique associations between insular alcohol cue reactivity and naturalistic drinking outcomes among individuals with alcohol use disorder

Sydni Anderson, BS & William Mellick, Ph.D.

Background: Alcohol cue reactivity assessed through functional magnetic resonance imaging (fMRI) is strongly associated with measurements of alcohol use. Prior cue reactivity studies of individuals with alcohol used disorder (AUD) have identified neural substrates associated with AUD maintenance factors (e.g., craving; insula) and relapse (e.g. ventral striatum). This study aimed to identify potentially unique relations between cue reactivity and alcohol use outcomes associated with AUD. **Methods:** 28 individuals (mean age: 34; 42.9% female) were recruited to form AUD (n=14; means of 7.09 drinks/drinking day, 50.84% heavy drinking days [HDD], and 3.38 drinks/day over past 30) and healthy control groups (HC; n=14; means of 1.79 drinks/drinking day, 0.84% HDD, and 0.81 drinks/day over past 30). Participants underwent clinical interviews and a scanning protocol recording blood-oxygen-level-dependent activation to visual alcohol cues using a well-validated paradigm. Regions-of-interest included the left insula, left ventral striatum (LVS), and right medial prefrontal cortex (RmPFC). Bivariate associations between key variables (i.e., craving, obsessive-compulsive features, and naturalistic drinking over the previous 90 days) were analyzed (at a nominal $p < 0.05$) to inform selection of exploratory moderation models. **Results:** Using full sample data, correlations showed significant strong positive associations between insular activation to alcohol cues and heavy drinking. AUD showed a significant positive moderating effect on this relationship with respect to %HDD along with a significant negative moderating effect with respect to %days abstinent. Associations between cue reactivity in the LVS and RmPFC and key variables were not differentially influenced by AUD. **Conclusions**: The findings suggest a unique association between insular alcohol cue reactivity and drinking habits among AUD individuals, reinforcing the insula's role in the salience network. Insignificant correlations between insular cue reactivity and craving per OCDS were unexpected but may be due to limited statistical power.

Poster #2

Impact of ADHD and Internalizing Disorder Symptoms on Substance Use Initiation Among Adolescents

Gabriel Comas, Alexis Garcia, Ph.D., & ReJoyce Green, Ph.D.

Background: Attention-deficit/hyperactivity disorder (ADHD) is a neurodevelopmental disorder that affects approximately 9.2% of children in the US. Youth with ADHD are more likely to initiate substance use (SU). Impairments associated with ADHD may impact social functioning leading to internalizing problems (e.g., anxiety, depression), which are also highly comorbid with SU. Less is known about how internalizing disorders may serve as an indirect pathway through which ADHD alters SU outcomes **Methods:** The Adolescent Brain Cognitive Development (ABCD) study is a multi-site, longitudinal study following 9-10 year-old youth into early adulthood. The present study included 4,073 substance naïve adolescents. Our primary aim was to examine whether internalizing disorders may mediate the effect of ADHD symptomatology on SU initiation at ages 11.5 – 13. The Child Behavior Checklist (CBCL) assessed ADHD symptomology and internalizing disorder symptoms. SU initiation was defined as experimentation, such as a single sip or puff of any substance (e.g., alcohol, nicotine, cannabis, misuse of prescription medications). **Results:** A total of 10.2% of participants initiated SU. Alcohol was the most common substance initiated followed by nicotine and cannabis. ADHD symptoms significantly predicted SU initiation (OR = 1.02, 95% CI = 1.00 - 1.04) and internalizing disorder symptoms (Estimate = 0.67, $p < 0.01$). However, there was no effect of internalizing disorder symptoms on SU initiation (OR = 1.00, 95% CI = .99 – 1.00). The average causal mediation effect was also non-significant (Estimate = <.01, p = 0.136). **Conclusions:** Greater ADHD symptomatology was associated with more internalizing symptoms and higher likelihood of SU initiation. We did not observe a mediating effect of internalizing symptoms on the relationship between ADHD and SU initiation. Future research should examine if internalizing disorders mediate the association between ADHD and specific substances (I.e., alcohol).

POSTER #3

Sex Differences in Neural Responding to Alcohol and Conflict Cues Among Individuals with Alcohol Use Disorder and Couples Conflict

Amanda De La Cruz, BS, Kyle Blidy, MS, Amber Jarnecke, Ph.D., Jane Joseph, Ph.D., & Julianne Flanagan, Ph.D.

Background: Alcohol Use Disorder (AUD) is a biopsychosocial illness mutually reinforced by couples conflict. Understanding the neural basis for AUD and couple conflict is crucial for tailoring personalized interventions. Since sex plays a distinct role in the motivating factors leading to drinking initiation, sex may modulate this relationship. We investigated sex differences in brain activity during conflict and alcohol cues among individuals with AUD. Two brain regions of interest were the anterior cingulate gyrus (ACG) and amygdala. The ACG is linked to conflict monitoring; the amygdala promotes physiological stress responding and is involved in alcohol dependence. Hypothesis: Compared to males, females with AUD will exhibit greater amygdala-ACG functional connectivity while listening to conflict cues since females tend to demonstrate a greater amygdala response to negative material. **Methods:** Participants (N=34) with AUD were part of a larger clinical trial examining oxytocin alongside Alcohol Behavioral Couples Therapy. Analyses reflect pre-treatment data only. Individuals listened to personalized auditory scripts (alcohol, neutral, couple conflict) presented in a counterbalanced fashion during functional magnetic resonance imaging (fMRI) scanning. Standard fMRI preprocessing was followed by general linear modeling of BOLD activation for each cue condition and cue contrast by sex, female (N=18) and male (N=16). Psychophysiological interaction analysis with the amygdala as a seed assessed the impact of sex on functional connectivity while listening to scripts. **Results:** Males exhibited greater activation in the paracingulate gyrus compared to females in response to conflict cues. However, females demonstrated connectivity between the left amygdala and the right middle frontal gyrus that was not observed in males for the Conflict>Alcohol contrast. **Conclusions:** These findings indicate that (1) conflict cues may be more salient in males than in females, and (2) compared to males, females engage in emotion-regulating regions while listening to conflict cues. Further research is needed to explore clinical relevance.

POSTER #4

Neural reactivity in comorbid PTSD and AUD: An investigation by trauma type

Megan Gray, Amber M. Jarnecke, Ph.D., Sudie E. Back, Ph.D., Jane E. Joseph, Ph.D., Kevin Gray, M.D., & Elizabeth Santa Anta, Ph.D.

Background: Posttraumatic stress disorder (PTSD) and alcohol use disorder (AUD) commonly co-occur, yet there is limited knowledge of the neurobiology of this comorbidity. Some research shows that interpersonal trauma (e.g., sexual/physical assault) is more likely to lead to PTSD and may be associated with a more severe symptom profile than other types of traumatic events (e.g., car accident, natural disaster). Investigating if trauma type (interpersonal vs non-interpersonal) influences neural reactivity in patients with PTSD-AUD may inform whether more individualized treatments are needed by trauma type. Based on previous research, we hypothesized that participants who experienced an interpersonal trauma, compared to a non-interpersonal trauma, would demonstrate greater activation in the limbic and frontal regions in response to both trauma- and alcohol-related cues compared to neutral cues. **Methods:** Data was drawn from a randomized controlled trial in which participants (N=27) listened to personalized trauma, alcohol, and neutral cues during a functional magnetic resonance imaging (fMRI) scanning procedure. Data were preprocessed and FEAT was used to analyze fMRI data. Trauma type was entered as a predictor in voxel-wise analyses. **Results:** Eighteen participants experienced interpersonal trauma and nine participants had a non-interpersonal trauma. No statistically significant differences (at a threshold of $p<0.05$) were observed in neural activation by trauma type for the trauma versus neutral or alcohol versus neutral cue comparisons. **Conclusions:** Similar neural reactivity between trauma type was observed among individuals with comorbid PTSD-AUD. The findings may have implications for treatment, suggesting that individualized treatments may not require specialization based on trauma type. The sample size was small and replication with a larger sample is warranted. Future research is needed to better understand the neurobiology of how alcohol impacts neural reactivity among individuals with comorbid PTSD.

POSTER #5

Assessing the Feasibility and Tolerability of Accelerated Intermittent Theta Burst Repetitive Transcranial Magnetic Stimulation (iTBS-rTMS) for the Treatment of Post-Partum Depression: Toward Reducing Treatment Burden to Enhance Outcomes for New Mothers

Briana Lewis, MA, Samantha LaPorta, BA, Anna Ehrhardt, M.D., Constance Guille, M.D, Suzanne Kerns, M.B.B.S., & Lisa M. McTeague, Ph.D.

Background: Post-Partum Depression is defined as persistent depressive symptoms that occur up to one year after pregnancy. Affecting ~22% of child-bearing women, PPD is known to be the most common complication of childbirth. Pharmacotherapy, the most common intervention, has the potential for antidepressants to cross over into breastmilk and is thus associated with high refusal among new mothers. This renders non-invasive brain stimulation a treatment without these side effects, a potentially more attractive option. However, a conventional, FDA-approved repetitive transcranial magnetic stimulation (rTMS) treatment course runs for 4-6 weeks with 30 daily appointments, posing a burden to busy new mothers. Accelerated (multiple treatments per day) of theta burst rTMS (aiTBS) significantly shortens total treatment time and has similar efficacy to conventional rTMS. The objective of this pilot study is to determine feasibility and preliminary efficacy of accelerated aiTBS for PPD. **Methods:** In this ongoing open-label trial of aiTBS we have enrolled nine participants to date. Five completers have received ten sessions of 600 pulses of aiTBS to the left DLPFC (120% resting motor threshold) for six days within a two-week time frame, with a week break in between (three weeks total). Clinical assessments were conducted at baseline, immediately post-treatment, and at weekly follow ups for four weeks. **Results:** Regarding feasibility and tolerability, all participants rated the treatment as acceptable and credible and had minimal reports of treatment-associated discomfort. Regarding preliminary efficacy, of the current 5 completers, 80% were responders in depressive symptoms. Interestingly, these findings also generalized to corresponding relief of rumination and worry. **Conclusions:** The preliminary findings suggest that 60 sessions delivered over six days (10 sessions/day, 600 pulses/session) is a feasible, credible, and tolerable treatment for PPD and shows promise for clinically meaningful relief of depression and associated anxiety.

POSTER #6

Exploring Sex Differences in the Daily Associations of Alcohol and Cigarette Use: Insights from a Smoking Cessation Trial

Faith Lockhart, Kyle Walter, Ph.D., Karen Hartwell, M.D., Emma Manel, BS, & Erin McClure, Ph.D.

Background: Alcohol and tobacco use are closely linked, with individuals who consume alcohol being more likely to smoke, and vice versa. The optimal approach to treating co-occurring substance use is debated, with some programs prioritizing treatment for alcohol use disorder before addressing tobacco use, while others emphasize simultaneous abstinence. Limited literature exists on sex differences in these treatment approaches. This study investigates sex differences in daily associations between alcohol and cigarette use during a smoking cessation trial. **Methods:** This study is a secondary analysis of an 8-week randomized, double-blinded clinical trial assessing the efficacy of N-acetylcysteine (NAC) versus placebo for tobacco use disorder. The analysis involves 109 adult participants (49% male, 51% female) who smoked daily, wanted to quit smoking and made a quit attempt as part of the study. Mobile daily diary data on tobacco and alcohol consumption were analyzed to assess the impact of daily alcohol consumption on cigarette use throughout the trial. **Results:** Mixed model linear regression analysis of 5,632 days in 109 individuals revealed a positive effect of drinking on daily cigarette smoking. There was a significant interaction between sex and daily drinking, indicating that females ($b = 0.61$, $p < .001$) had a stronger alcohol effect on smoking compared to males ($b = 0.41$, $p < .001$). **Conclusions:** These findings confirm a positive relationship between drinking and smoking, particularly among females during a smoking cessation trial. The results suggest that women in a cessation trial may face challenges quitting smoking on days when they consume alcohol, highlighting the need for sex-tailored treatments. Further research is needed to understand the underlying mechanisms driving these associations to address this critical research gap.

POSTER #7

Three-week rTMS does not affect white matter integrity in smokers: A preliminary finding with Diffusional Kurtosis Imaging

Hetvi Solanki & Xingbao Li, M.D., MSCR

Background: Cigarette smoking causes approximately 8 million deaths and an economic loss of $193 billion annually. Repetitive transcranial magnetic stimulation (rTMS), an FDA-approved therapy for smoking cessation, can enhance cognitive function, decrease cue-induced craving, and reduce cigarette consumption. Although the exact mechanism of rTMS for smoking cessation is unknown, it can be theorized that it alters neural circuitry by specifically targeting areas such as the dorsolateral prefrontal cortex (DLPFC), insula, and medial orbitofrontal cortex (mOFC). Diffusion Kurtosis Imaging (DKI) is routinely used in clinical settings to visualize white matter tracts and presents itself as an easy-to-use method that is clinically applicable in the fields of psychiatry and neuroscience. We hypothesize that DKI measurements will remain constant at the site of rTMS treatment (DLPFC or mOFC) and change in the reward network (NAc and mOFC). **Methods:** DKI data from 10 subjects pre-rTMS and post-rTMS was processed via PyDesigner. Kurtosis Fractional Anisotropy (KFA) files were then used to obtain measurements of the DLPFC, NAc, and mOFC via MRIcron. The acquired measurements were analyzed via SPSS. **Results:** Paired t-test results showed no significant changes in the mean values of the NAc (0.3410 vs 0.3066), DLPFC (0.2044 vs 0.2057), or mOFC (0.2812 vs 0.2708) pre- and post-rTMS. A significant correlation was observed between the pre-rTMS DLPFC and pre-rTMS mOFC measurements based on an R-value of 0.685 at $p<0.05$. Measurements of the mOFC showed a significant correlation between pre-rTMS and post-rTMS conditions with an R-value of 0.746 at $p<0.05$. **Conclusions:** Our findings suggest no damage occurs in the brain post-rTMS. A correlation was found within the regions of interest which should be further investigated via fiber tractography. Our next steps are to integrate DKI and fiber tractography to predict the therapeutic effects of rTMS for smoking cessation.

POSTER #8

Engagement Outcomes for an App-Based Vaping Intervention Among Adolescents with Depression

Ebonie White, Olivia Levins, BA, Amy E. Wahlquist, MS, Margaret Fahey, Ph.D., & Jennifer Dahne, Ph.D.

Background: In 2022, the CDC reported that 17.4% of middle and high schoolers used e-cigarettes within the past 30 days. The introduction of heavy nicotine consumption to the developing brain makes adolescents vulnerable to many mental health challenges. Research suggests that technological interventions may be effective for this problem. The goal of this study was to analyze the adolescent's engagement with a vaping mobile application intervention. This can help inform areas of improvement for future interventions. **Methods:** The parent study developed and refined an easily accessible app involving behavioral activation as an intervention for adolescents that vape and have depressive symptoms. Descriptive statistics were utilized to understand patterns of intervention engagement. **Results:** Participants included 56 older adolescents (Age (M(SD)=18.7(1.0), 63% Female, 76% White) who reported vaping 19.3(24.4) times per day at study entry. Regarding engagement patterns with VapeX, participants completed 17.1(11.7) app sessions during the 4-week usage period and used the app for 108.8(91.4) minutes. Retention, defined as an app usage during each week following initial download, was generally strong across the follow-up period (Week 1: 100%, Week 2: 89%, Week 3: 76%, Week 4: 69%). Regarding engagement patterns with specific VapeX features, app users on average set their daily mood 10.4 times (SD=9.9), received 27.2 (25.7) experience points (i.e., a gamification feature), and earned enough XP to level up 2.1(1.7) times. All users set a quit date and set an individualized reason to quit. Regarding engagement with behavioral activation components, participants on average set 2.2(2.1) goals and completed 4.2(10.5) goal-driven activities. **Conclusions:** Retention rates across mental health intervention apps that implement behavioral strategies vary widely. VapeX showed relatively high levels of retention. Results suggest that gamification features are appealing and encourage retention of mobile application treatments for adolescents.

POSTER #9

Measuring the Neural Circuities of Anxiety-Related Escape and Avoidance Behaviors Using fMRI: Do Escape and Avoidance Have Different Neural Substrates?

Collin Wolf, Christopher T. Sege, Ph.D., & Lisa M. McTeague, Ph.D.

Background: Anxiety disorders are characterized by heightened escape and avoidance behaviors in response to aversive stimuli. Research in animals suggest distinct neurocircuitry in escape versus avoidance behaviors, the characterization of similar distinctions in humans could improve current anxiety-related treatments. In humans, such differences could arise in areas recruited in threat processing (e.g., right amygdala; medial prefrontal cortex, mPFC) and/or motor preparation (e.g., anterior cingulate, ACC; pre-supplementary motor area, pre-SMA) which are both involved in coping responses. **Methods:** To test for differences in escape versus avoidance processing, thirty-seven patients seeking treatment for anxiety were recruited to complete an escape/avoidance task in concert with functional MRI. In the task, aversive natural scenes were shown with three different preceding cues indicating whether the scene could be avoided (button press before scene onset), escaped (button press after onset) or not controlled. Throughout the task, whole-brain fMRI was collected. **Results:** A general effect of cue type was found in all regions of interest, namely: right amygdala (peak F = 14.9), mPFC (peak F = 11.4), ACC (peak F = 13.6), and pre-SMA (peak F = 12.1). Within these regions, BOLD signal was increased for escape compared to avoidance conditions in right amygdala (peak t = 2.9) and ACC (peak t = 2.5), but not in mPFC or pre-SMA. **Conclusions:** Results reveal partially overlapping and distinct neural networks of escape and avoidance in humans. This could critically inform targeting these behaviors in disorders where they are central driving factors – namely, anxiety/ related disorders. Particularly, knowledge about varying neural circuitries for different but related escape and avoidance behaviors could improve precise targeting using brain stimulation technologies like transcranial magnetic stimulation. This could transform TMS for anxiety from an inconsistently effective treatment into a more novel approach (as it is for depression).

POSTER #10

Identifying Brain Biomarkers and Phenotypic Variance at the Individual Level Using an Iterative Functional MRI Parcellation Technique

Yongkuan Zhang, Xiaolong Peng, Ph.D., Andrew J. Manett, M.D., Kristin Wills, John Robinson, Falon Sutton, Brenna L. Baker-Vogel, Ethan Ashley, M.D., Baron Short, M.D., & Bashar W. Badran, Ph.D.

Background: Differences in structural and functional brain connectivity between individuals are critical in identifying biomarkers of neuropsychiatric disorders like major depressive disorder (MDD). Studying these variances requires deciphering fluctuating brain networks on an individual level. Functional magnetic resonance imaging (fMRI) combined with individualized parcellation can provide valuable insight into the functional connectivity between brain states. Here we aim to use this novel method to capture brain network differences and phenotypic variance across individuals, which can be applied to track biomarkers of recovery in MDD. **Methods:** After signing consent, two healthy males received two sessions of both T1-weighted structural scans and resting-state fMRI scans three weeks apart. Individualized parcellation was used to divide brains into 18 discrete networks. Spearman correlation was used to assess the spatial and functional-connectivity similarities between parcellation maps. Laterality analysis was used to compare the areas of pre-defined language networks between the left and right brain hemispheres. **Results:** Our individualized cortical parcellation demonstrated a higher spatial similarity in functional networks within the same subject (Spearman correlation, r = 0.8806) compared to that between different subjects (r = 0.7738), indicating that this novel technique is robust in capturing individual differences. Similar results were also obtained in the functional connectivity of these brain networks (intra-subject r = 0.7780, inter-subject r = 0.6646). Furthermore, 2 out of 18 functional networks derived from our parcellation were defined as language-related networks and demonstrated left laterality for both participants (laterality index, C001 = 0.1586, C002 = 0.1476). **Conclusions:** Preliminary evidence demonstrates that this novel parcellation strategy is reliable within subjects and can capture differences across individuals. Through comparing with healthy individuals, this method can potentially aid in identifying biomarkers specific to diseases such as MDD. Therefore, future applications could involve tracking brain renormalization throughout antidepressant therapy and developing individualized treatment plans.

POSTER #11

Associations Between Stress, Craving and Alcohol Consumption Among Women: Preliminary Results from an Ecological Momentary Assessment Study

Sandra Mariely Estrada Gonzalez, BA, Sudie Back, Ph.D., Constance Guille, M.D., Christopher Metts, M.D., Kathleen Brady, M.D, Ph.D., Anna Foster, BS, Michaela Hoffman, Ph.D., & Christine Hahn, Ph.D.

Background: In the United States, 106.7 million women ages 18 and older use alcohol, but only 5.4% receive treatment. Women's Health clinics are a primary resource for behavioral health care among women, making it an ideal place to address alcohol misuse. Further, mobile interventions offer an accessible way to deliver interventions. To inform treatment development, this study examined stress, craving, and alcohol consumption collected in real time among women. **Methods:** Women (N=40), with alcohol misuse (AUDIT-C ≥ 3) completed Ecological Momentary Assessments (EMA) for 7 days. Each morning participants reported drinks consumed the previous day. Participants received four random EMAs that assessed stress, craving, and current alcohol use. One EMA per day was a Cue Ecological Momentary Assessment (CREMA), which involved rating craving before and after viewing a photograph of an alcoholic beverage for 30 seconds. Participants scores were averaged, and Pearson correlation coefficients were computed. **Results:** Most participants were recruited from a women's health clinic (64%), were white (7.5% black), with an average age of 30.4 (SD = 8.68). A total of 249 EMAs and 196 CREMAs were completed. On average, participants reported drinking during 20% of EMAs completed. Average craving (M = 22.42, SD = 19.32; 0-93) was positively correlated with average stress (M = 32.53, SD = 16.14; 3-73; $r = .60$, $p < .001$] and number of drinks consumed the day before ($r = .35$, $p < .01$). CREMA change scores were not significantly correlated with average craving ($r = -.06$, $p = .691$), stress ($r = .01$, $p = .942$), or drinks ($r = .13$, $p = .431$). **Conclusions:** Decreasing stress and craving in real time via mobile interventions may be an effective way to reduce alcohol misuse among women's health patients. CREMA seems to be a safe and effective way to assess alcohol craving.

POSTER #12

Examining baseline characteristics and motivation, readiness, and confidence in the ability to quit among youth enrolling in a cannabis use disorder treatment trial

Loren Hardeman, MS, MBA, Pamela Ferguson, Ph.D., & Kevin Gray, M.D.

Background: Adolescent-onset cannabis users are more likely than adult-onset users to develop a maladaptive pattern of use characterized as cannabis use disorder (CUD). Within an ongoing CUD pharmacotherapy clinical trial for youth ages 14-22, we sought to examine the relationships between participant demographics, CUD severity, and methods of cannabis use and motivation, readiness, and confidence in the ability to cease using cannabis. **Methods:** Participants enrolling in the trial completed a demographic survey, were assessed for CUD severity via the Clinical Global Impression Scale and reported their methods of cannabis use in the 30 days prior to enrollment. Multivariable linear regression was used to determine whether demographic variables, CUD severity, and the number of methods used were associated with motivation, readiness, and confidence to quit. **Results:** Findings indicate that youth enrolling in a CUD treatment program endorse several methods of cannabis use in the prior 30 days. Out of 9 categories the most common were bongs (81%), blunts (76%), joints (74%), and pipes/bowls (62%). Participants reported an average of 4.6 methods of use. On a 1-10 scale, the average ratings for motivation, readiness, and confidence to quit cannabis were 5.8, 5.6, and 6.9 respectively. Black participants reported more confidence in quitting than other racial groups. CUD severity was positively associated with motivation and readiness but not confidence in quitting. Number of cannabis use methods did not predict motivation, readiness, or confidence in the ability to quit. **Conclusions:** Baseline characteristics may be associated with motivation, readiness, and confidence in the ability to cease cannabis use, providing potential pathways to tailoring assessment and clinical programming for youth with CUD.

POSTER #13

Testing the Bidirectional Relationship Between Depression and E-cigarette Uptake: A Secondary Data Analysis from a Prospective Nationwide Longitudinal Study of E-cigarette Uptake

Kimberly Velazquez, Matthew Carpenter, Ph.D., & Tracy Smith, Ph.D.

Background: Electronic cigarettes (e-cigarettes) have become increasingly popular and pose a lower health risk than traditional cigarettes. Research shows that both smoking and vaping are associated with psychological distress (symptoms of anxiety, stress, and depression). The mechanism behind high rates of smoking among those with depression is unclear. Several studies suggest that individuals with depression may be more likely to initiate smoking or vaping, while others suggest that smoking or vaping has the capability to increase depressive symptoms. However, no study has yet tested whether depression is related to vaping uptake among adults who already smoke cigarettes. The present study will analyze the bidirectional relationship between depression and e-cigarette use among individuals who currently smoke traditional cigarettes. **Methods:** Adult smokers (N=638) were recruited nationally and randomized to either receive a free 4-week supply of flavored, tank-style e-cigarettes, or not with minimal instructions on use. Through 4 weeks of follow-up, measures of e-cigarette usage and depressive symptoms (PHQ-8) were taken weekly. **Results:** There was not a significant difference between individuals with lower vs. higher levels of depression at baseline on e-cigarette use at Week 4 [t (425) = .005, p = .996]. There was also not a statistically significant interaction between groups (e-cig vs. control) and PHQ over time (F (4, 1772) = 0.59, p=0.67)). **Conclusions:** While depression rates lowered over time, this was not due to an association between depression and e-cigarette uptake. The present study did not find evidence of a bidirectional relationship. A short study period may explain the lack of association, or the inclusion of current smokers in the trial rather than nicotine naïve individuals. Established nicotine dependence could potentially allow e-cigarettes to maintain or stabilize depression symptoms rather than worsen them. Further research is needed to fully understand the impact of e-cigarettes on mental health.

POSTER #14

Understanding the relationship between predictive factors and the association with crime among dually diagnosed homeless veterans

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Background: Most homeless veterans report substance use problems and nearly half experience significant mental illness. More than half of justice-involved veterans have mental health disorders and substance use disorders (SUD). Generally, justice-involved individuals experience higher rates of mental health disorders and traumatic experiences, and justice-involved veterans face a much higher risk due to the nature of their military service. More research is needed to better understand the risk factors that affect justice-involved homeless veterans with SUDs and mental health disorders. **Methods:** This study is a secondary analysis of raw data from a RCT evaluating psychosocial treatment for dually diagnosed homeless veterans (n= 184) with SUDs. A subset of veterans (n = 8) who indicated having a criminal history during the six-month study were compared to a demographically matched sample of non-justice involved veterans using case-control matching. Normality was tested using Shapiro-Wilk warranting non-parametric analyses, and the following outcomes were examined between groups: housing instability, psychiatric and SUD severity, perceptions of quality of life and social support, and treatment attendance. **Results:** Independent-Samples Median Tests yielded no statistical differences between groups for all outcomes, null hypotheses were retained, and descriptive statistics are presented. Justice-involved veterans experienced greater housing instability, higher levels of psychiatric and SUD severity, greater negative perceptions of quality of life, and less social support. The subset of patients with criminal histories received more AA/NA at 1 MO and 3 MO FU, outpatient mental health treatment for psychiatric disorders and SUD at baseline and 1 MO FU that decreased at 3 MO FU. **Conclusions:** The current study lacked statistical power to demonstrate significant differences between groups unless effect sizes were extremely large. Analyses based on descriptive data revealed some interesting group differences that can inform future research about treating the growing patient population of dually diagnosed justice-involved veterans experiencing homelessness.

POSTER #15

Examining Neural Activation Associated with Sex and Craving Among Individuals with Alcohol Use Disorder and Post-Traumatic Stress Disorder

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Background: Alcohol use disorder (AUD) and posttraumatic stress disorder (PTSD) are highly comorbid. Dysregulation of the corticolimbic system is implicated in AUD and PTSD separately; however, less is known about the neurobiological mechanisms underlying craving in comorbid AUD/PTSD and how sex may modulate these circuits. Of particular interest is the orbitofrontal cortex (OFC), which is implicated in craving via projections to nucleus accumbens. This study aims to use functional magnetic resonance imaging (fMRI) to examine blood-oxygen level dependent (BOLD) signal among individuals with AUD/PTSD to examine neurobiological mechanisms implicated in craving, possibly involving the OFC. Further, this study investigates the effects of sex with craving on neural activation. **Methods:** Participants (N=27; female=15, male=12) were enrolled in a larger trial for individuals with AUD/PTSD. At baseline, participants completed standardized measures and listened to personalized imagery scripts (alcohol, trauma, and neutral cues) during fMRI scanning. BOLD signal was characterized using voxel-wise general linear modeling. Main effects for sex and craving (measured with the Obsessive Compulsive Drinking Scale [OCDS]) as well as the interaction of sex by craving were modeled. **Results:** Males and females did not have significantly different OCDS-Obsessive (OCDS-O) and OCDS-Compulsive (OCDS-C) subscale scores (p=0.202). OCDS subscale scores were not significantly associated with OFC activation. For the trauma versus neutral cue comparison, significant activation was moderated by the sex by OCDS-C term in the superior temporal gyrus (z=3.58, p=0.004) and the occipital fusiform gyrus (z=4.3, p=0.022), such that males with lower OCDS-C scores had greater activation in these regions. **Conclusions:** Findings suggest that OCDS scores did not differ based on sex and were not associated with OFC activation among individuals with AUD/PTSD. Rather, males with lower OCDS-C scores had greater activation in the superior temporal gyrus and the occipital fusiform gyrus for the trauma vs neutral comparison. Given significant activation in regions associated with semantic and visual processing, this may suggest that males with fewer compulsive urges to drink were more engaged with the salient trauma cue than females or individuals with higher OCDS-C scores. Perhaps males with lower drinking urges experience more readiness to engage in exposure to trauma cues.

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