



MUSC Addiction Sciences Division

# Diversity in Addiction Research Training (DART)

presents the

## 2024 Summer Research Day

**In Person at the MUSC Institute of Psychiatry  
Virtually on Zoom**

**Friday, July 26<sup>th</sup>, 2024  
10:00am-1:30pm EST**



PROGRAM GUIDE

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## VIRTUAL MEETING INFO



### Joining Us Online?

Visit our website, [www.musc.edu/DART](http://www.musc.edu/DART) and register to join. You will receive an email with the Zoom link.

### QUESTIONS? TROUBLE ACCESSING?

Contact [delacram@musc.edu](mailto:delacram@musc.edu)



# AGENDA

Friday, July 26, 2024

**10:00-11:00am EST | | Keynote Address**

(MUSC IOP Auditorium & Zoom)

**11:00-12:00pm EST | | Virtual Poster Presentations**

(MUSC IOP Auditorium & Zoom)

**12:00-1:30pm EST | | In Person Poster Presentations**

(MUSC IOP Lobby)

## KEYNOTE ADDRESS



***“AI Healthcare, Equity, and the Convergence of Data”***

**Niranjan S. Karnik, MD, PhD**  
*University of Illinois, Chicago*

Friday, July 26, 2024

10:00 AM – 11:00 AM EST

Dr. Karnik is The J. Usha Raj Professor of Psychiatry & Pediatrics, Director of the Institute for Juvenile Research, Co-Director of the Institute for Research on Addictions, and Interim Director of the AI.Health4All Center for Health Equity using ML/AI at the University of Illinois, Chicago. He serves as MPI and Director of the Great Lakes Node of the National Drug Abuse Treatment Clinical Trials Network. His research focuses on data science, technology and community-based interventions for individuals with psychiatric and substance use disorders. He has worked with refugee children on the Pakistan-Afghan border, street children in India, foster youth in Central Illinois, and incarcerated youth in California. He worked at a youth homeless shelter in San Francisco and is continuing work with youth experiencing homelessness in Chicago and Illinois. He presently leads or co-leads grants from the National Institute on Drug Abuse and the National Center for Advancing Translational Sciences. He is a Distinguished Fellow of the American Psychiatric Association and Distinguished Fellow of the American Academy of Child & Adolescent Psychiatry.

# POSTER PRESENTATIONS

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**#1 || Evaluating the Impact of E-Cigarettes on Cigarette Reinforcement Value: A Secondary Analysis of a Nationwide Clinical Trial Using the Brief Cigarette Purchase Task**

Presented by Khalea Avery  
Undergraduate student at Alabama A&M University  
Mentored by Tracy Smith, Ph.D.  
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**#2 || Shifting Perceptions of E-Cigarette Risk: A Secondary Analysis from a Nationwide, Randomized Controlled Clinical Trial for E-Cigarette Uptake Among Smokers**

Presented by Emily Barros, B.S.  
Undergraduate student from the University of South Carolina Honors College  
Mentored by Tracey Smith, Ph.D.  
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**#3 || Examining Nicotine Dependence in Adults Using E- Cigarettes with and without Attention Deficit Hyperactivity Disorder**

Presented by Clariashli Docena-Guerrero  
Undergraduate student at the College of Charleston  
Mentored by Erin McClure, Ph.D. and Rachel Tomko, Ph.D.  
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**#4 || The Effect of Having Sucrose as an Alternative on Voluntary Alcohol Intake in Alcohol-Dependent and Control, Non-Dependent Mice**

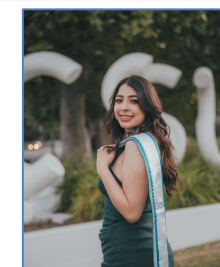
Presented by Luna Holley  
Undergraduate student at Marian University  
Mentored by Marcelo Lopez, Ph.D. and Howard Becker, Ph.D.  
Abstract Page 8



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**#5 || Effects of Teachers' Expectations on Middle School Students' Emotional and Behavioral Outcomes**

Presented by Aileen Kangavary, B.A.  
Doctoral student at the University of South Florida  
Mentored by Colleen Halliday, Ph.D.  
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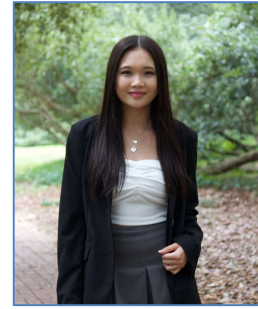
**#6 || The Effects of Cannabidiol on Olfactory Physiological Cue Reactivity in Youth with Alcohol Use Disorder**

Presented by Alison Kong

Undergraduate student at the University of South Carolina

Mentored by Lindsay Squeglia, Ph.D. and Anna Kirkland, Ph.D.

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**#7 || Predictors of Opioid Use Severity: Exploring Gender Differences in Depression and Anxiety**

Presented by Abigail Obeng

Undergraduate student at the University of Pittsburgh

Mentored by Delisa Brown, Ph.D.

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**#8 || Investigating the Anti-Pain Effect of Transcutaneous Auricular Vagus Nerve Stimulation (taVNS) in Patients with Chronic Post-Stroke Upper Extremity Pain**

Presented by Fisayo Omonije

Undergraduate student at Johns Hopkins University

Mentored by Bashar Badran, Ph.D.

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**#9 || Does Enhanced Cognitive Processing Therapy with Lifesteps Reduce HIV Stigma and PTSD Symptoms Among People with HIV?: Preliminary Results from a Pilot Randomized Controlled Trial**

Presented by Shibrika Pansy, M.S.

Medical Student at Howard University College of Medicine

Mentored by Carla Danielson, Ph.D. and Cristina Lopez, Ph.D.

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**#10 || Neuronal Activity in Prefrontal Cortex Underlying Relapse in Substance Use Disorders**

Presented by Aryan Parmar

Undergraduate student at the College of Charleston

Mentored by Elizabeth Doncheck, Ph.D.

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**#11 || Racial Disparities in Cesarean Delivery Rates among Low-Risk, Nulliparous, Term, Singleton, Vertex (NTSV) and an Institution's Efforts to Reduce Them**

Presented by Sumaya Smarony, B.A.  
Medical student at Howard University College of Medicine  
Mentored by Connie Guille, M.D.  
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**#12 || Sign vs. Goal Tracking in Alcohol Use Disorder: Predicting Problem Alcohol Use Using a Neurophysiological Endophenotype of Reward-Based Incentive Saliency Attribution**

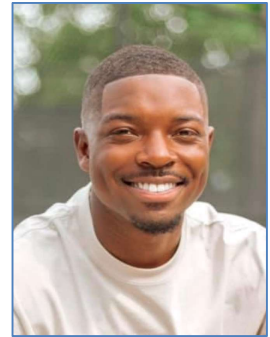
Presented by Sophia Taber  
Undergraduate student at the University of South Carolina Honors College  
Mentored by Lisa McTeague, Ph.D.  
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**#13 || Moderating Role of Smoking on the Effect of N-Acetylcysteine on Frontal Glutamate Levels in Co-Occurring Bipolar and Alcohol Use Disorders**

Presented by Courtland Woods  
Post-baccalaureate student at the University of South Carolina  
Mentored by James Prisciandaro, Ph.D.  
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# ABSTRACTS

## POSTER #1

### Evaluating the Impact of E-Cigarettes on Cigarette Reinforcement Value: A Secondary Analysis of a Nationwide Clinical Trial Using the Brief Cigarette Purchase Task

Khalea Avery, Tracy Smith, Ph.D., and Matthew J. Carpenter, Ph.D.

**Background:** E-cigarettes have gained popularity as an alternative to cigarettes, with the potential to aid smoking cessation. However, their effectiveness in reducing the reinforcement value of smoking is unclear. The Cigarette Purchase Task (CPT) asks participants to report how many cigarettes they would buy at various prices, providing metrics that can be indicative of reinforcement value. The present study aimed to utilize a brief version of the CPT to assess the impact of e-cigarettes on cigarette reinforcement value. **Methods:** The present study is a secondary data analysis of a large, nationwide clinical trial of e-cigarettes. In the parent trial, participants who smoked daily were randomized in a 2:1 ratio to receive 4 weeks of e-cigarettes (427 participants) or not (211 participants). Participants completed the brief CPT at baseline, week 4 (end of product provision), week 12, and week 24. We assessed whether there were differences in the change of CPT parameters between the e-cigarette and control groups. Parameters include Intensity, the hypothetical number of cigarettes participants would consume if cigarettes were free; Omax, the maximum amount of money spent on cigarettes in a single day; and Breakpoint, the highest price paid for a single 10-minute cigarette smoking. **Results:** There was a significant interaction between group and time for Intensity, such Intensity was reduced over time for the e-cigarette group ( $p < 0.05$ ). There were no differences between groups or interactions with time for Omax or breakpoint. **Conclusion:** The introduction of e-cigarettes reduced Intensity, but did not significantly impact other aspects of reinforcement value. This finding differs from one prior study which reported that e-cigarettes reduced Omax for cigarettes. Differences between studies may be a result of utilizing different versions of the CPT or may indicate cigarettes still maintain high reinforcement value even after another nicotine product has been introduced.

## POSTER #2

### Shifting Perceptions of E-Cigarette Risk: A Secondary Analysis from a Nationwide, Randomized Controlled Clinical Trial for E-Cigarette Uptake Among Smokers

Emily Barros, B.S., Matthew J. Carpenter, Ph.D., and Tracy Smith, Ph.D.

**Background:** The FDA acknowledges that there is a continuum of risk for tobacco and nicotine products, and that e-cigarettes are likely less harmful than combustible cigarettes as they release fewer carcinogens and toxicants. Over time, e-cigarette negative risk perceptions have increased, and this effect has been more pronounced among certain demographic groups. From the middle of 2019 to early 2020, peaking in September 2019, the US experienced what was commonly called e-cigarette or vaping product use-associated lung injury, or EVALI, which included multiple case reports of morbidity and even mortality. Media coverage of EVALI may have played a role in the changing harm perceptions of e-cigarettes and other tobacco products. **Methods:** To assess EVALI-related changes in harm perceptions, we analyzed data from a large, naturalistic, randomized, controlled clinical trial (N=638) for e-cigarettes in the US, conducted from May 2018 to March 2022. At baseline, participants rated absolute risks of cigarettes and e-cigarettes, and a relative risk score was created (e-cigarette risk – cigarette risk). Participants were grouped into 7-to-11-month long blocks based on enrollment date. **Results:** There was a significant effect of enrollment date block ( $p < 0.05$ ), such that risk perceptions of e-cigarettes increased following EVALI, which did not subside thereafter. There was a significant interaction between race and enrollment date on risk perceptions ( $p < 0.05$ ), such that non-white participants had higher relative risk scores. The interaction between educational attainment and enrollment date on risk perceptions did not reach significance ( $p = 0.052$ ). **Conclusions:** Results suggest that EVALI may have impacted relative risk perceptions for e-cigarettes, particularly among non-white smokers. There is a need to continue monitoring risk perceptions among smokers, as e-cigarettes may present as a safer alternative to smoking.

## POSTER #3

### Examining Nicotine Dependence in Adults Using E- cigarettes with and without Attention Deficit Hyperactivity Disorder

Clariashli Docena-Guerrero, Rachel L. Tomko, Ph.D., Jesse Vanacore, M.D., Maham Dilawar, M.D., and Erin A. McClure, Ph.D.

**Background:** Tobacco claims about 48 million American lives annually. E-cigarettes, commonly used for nicotine vaping, offer potential harm reduction but also pose risks including nicotine dependence among others. Recent studies indicate that children with ADHD are 2.5 times more likely to develop substance use disorders (SUD), with nicotine being the common substance used among this population. The present study aimed to compare nicotine dependence levels in adults who vaped nicotine (using e-cigarettes), with and without ADHD, to assess if ADHD correlated with higher nicotine dependence. **Methods:** A questionnaire was distributed via Prolific to adults in the southeastern United States who reported vaping any substance within 30 days. The study aimed to analyze vaping behaviors in this region using Penn State Electronic-Cigarette Dependence Index Score (10 items; Range: 0-20) to assess dependence levels. An independent one-sided t-test was conducted to compare severity of e-cigarette dependence in the study population. **Results:** Out of 376 total survey completers, 291 (77.5%) endorsed vaping nicotine. Nicotine users (M:41.2%, F:56.1% Other:2.7%) vaped nicotine either exclusively (45.7%) or in combination with cannabis (31.6%). The mean e-cigarette dependence score was 10.0 (SD=4.7) for adults with ADHD and 9.9 (SD=4.7) for adults without ADHD ( $t=.102$ ,  $df=289$ ,  $p=.459$ ), indicating moderate dependence (index scores between 9-12) for both populations. **Conclusion:** Results suggest that in this sample, there is no significant difference in nicotine dependence between adults with ADHD and those without. This sample had high e-cigarette dependence overall (scores: 10 and 9.9), irrespective of ADHD status. Future studies may seek to examine whether or not ADHD modifies the trajectory of e-cigarette dependence and the mechanism by which it does so.

## POSTER #4

### The Effect of Having Sucrose as an Alternative on Voluntary Alcohol Intake in Alcohol-Dependent and Control, Non-Dependent Mice

Luna M. Holley, Howard C. Becker, Ph.D., and Marcelo F. López, Ph.D.

**Background:** Alcohol use disorder (AUD) is a significant medical issue marked by persistent alcohol consumption despite adverse consequences. In the U.S., over 3 million cases are reported annually, highlighting its public health impact. This study aims to elucidate behavioral aspects of addiction related to choice by evaluating alcohol and sucrose preference in mice with alcohol dependence induced by chronic intermittent ethanol (CIE) vapor exposure. It is hypothesized that CIE-exposed mice will exhibit higher alcohol drinking and a stronger preference for alcohol over sucrose compared to controls. **Methods:** The study involved 48 C57BL/6J mice (24/sex). Mice had access to 15% ethanol and 1% sucrose solutions for two hours daily to establish baseline preferences. Throughout the study, mice were never deprived of food or water. After baseline assessment, mice were categorized into control and CIE groups based on their initial preferences and intake levels. CIE-exposed mice underwent a week of alcohol vapor exposure, while controls were exposed to air. Subsequently, both groups resumed alcohol vs. sucrose intake for five days, repeating this cycle to observe changes in alcohol intake and preference due to CIE exposure. **Results:** After the first cycle of the CIE exposure, CIE male mice had a higher alcohol intake and preference for alcohol vs. sucrose than the control male mice. For the females, there was no significant difference in alcohol intake between the control and CIE mice in Test 1. **Conclusions:** The study is ongoing and we plan to gradually raise the sucrose concentration to further evaluate alcohol intake and preference in CIE and control mice. It is expected that insights collected from this study will contribute to a deeper understanding of the correlation between substance preference and addiction, potentially informing future therapeutic strategies for AUD.



## POSTER #5

### Effects of Teachers' Expectations on Middle School Students' Emotional and Behavioral Outcomes

Aileen Kangavary, B.A., Jessica Norton, Ph.D., and Colleen A. Halliday, Ph.D.

**Background:** Teachers' expectations about students' abilities impact student academic performance, often leading to poor student outcomes. Researchers have called for investigations into additional student outcomes that are affected beyond academic outcomes. Although the potential negative influence of schools on students' mental health is well documented in the literature, the role of teacher expectations in student mental health outcomes has not yet been studied. The purpose of the present study is to examine the impact of teachers' expectations regarding students' educational trajectories on students' internalizing and externalizing behaviors. **Methods:** Participants included 383 middle school students, with 62.4% identifying as female, 29.0% Black, 9.1% multi-racial, 8.6% white, 8.4% Latinx, 3.7% Native American, 2.6% Asian, 5% other, and 33.7% unknown. Teachers reported their educational expectations for their students. Students completed the *Brief Problem Checklist* to measure internalizing and externalizing behaviors. The Illinois Bully Scale measured peer-based interactions (i.e., fighting and bullying). It is hypothesized that as teacher expectations decrease, students' internalizing, externalizing, and bullying behaviors would increase. **Results:** Simple linear regression analyses revealed that teacher expectations were negatively associated with externalizing symptoms ( $R^2=.20$ ,  $\beta = .096$ ,  $p=.036$ ), bullying behavior ( $R^2=.67$ ,  $\beta = .260$ ,  $p<.001$ ), and fighting ( $R^2=.78$ ,  $\beta = .280$ ,  $p<.001$ ). Teacher expectations were not significantly related to internalizing symptoms ( $R^2=.009$ ). **Conclusions:** Results indicate that teachers' expectations were not linked to internalizing behaviors but significantly associated with externalizing behaviors, fighting, and bullying, showing that a decrease in teacher expectations is associated with an increase in externalizing behaviors. These findings suggest that poor teacher expectations may have an adverse impact on students' SEB outcomes. Teacher expectations have been found to be lower for youth from diverse backgrounds compared to their white counterparts (Ready & Wright, 2011); therefore, it is important to target efforts to improve teacher expectations when working with marginalized groups.

## POSTER #6

### Effects of Cannabidiol on Olfactory Physiological Cue Reactivity in Youth with Alcohol Use Disorder

Alison Kong, Brittney Browning, Ph.D., Elizabeth Robertson, B.A., Samuel Agbeh, B.A., Lindsay Squeglia, Ph.D., and Anna Kirkland, Ph.D.

**Background.** Youth with alcohol use disorder (AUD) are at risk for long-term negative effects. Treatment is needed to mitigate the risks of lasting consequences, like craving. Cannabidiol (CBD) is a promising medication to reduce alcohol cravings. This study aims to investigate the effects of CBD on an olfactory cue-reactivity task, a proxy for craving, in youth with AUD. **Methods.** In youth (18-22 yrs. old) who met criteria for past-year AUD (N=23, age= 20.5 (1.5), 56.5% female), CBD (600 mg) or matched-placebo were acutely administered in a double-blind randomized crossover design. Participants were asked to sniff water followed by apple juice and their favorite alcoholic beverage in a randomized order. Physiological reactivity to olfactory cues was assessed using an electrocardiogram to measure heart rate variability (HRV), including sympathetic and vagal activities, their ratio, and respiratory sinus arrhythmia. Mixed linear models with a random effect of participant were used to assess the effects of medication (CBD, placebo), cues (water, apple juice, alcohol), and medication\*cue on the four HRV outcomes. **Results.** No significant HRV differences were noted between medication, cues, or medication\*cue ( $p's > 0.05$ ). No differences in HRV between the alcohol and apple juice cues were found, indicating that the olfactory cues presented generated no significant HRV response. **Conclusion.** CBD had no detectable effects on physiological reactivity to olfactory cues in this study. However, the results are not conclusive given that there was no significant HRV difference between the alcohol and non-alcohol olfactory cues. To better understand the effects of CBD on olfactory physiological cue reactivity, other measures must be considered, such as subjective cue ratings, skin conductivity, and respiration. This study provides valuable insights on the effects of CBD on olfactory-based cravings in youth with AUD and limitations of the alcohol olfactory task.

## POSTER #7

### Predictors of Opioid Use Severity: Exploring Gender Differences in Depression and Anxiety

Abigail S. Obeng, Delisa G. Brown, Ph.D., and Sudie E. Back, Ph.D.

**Background:** Opioid use disorder (OUD) is a U.S. epidemic, resulting in more than 130 deaths each day. OUD often coexists with other psychiatric conditions like depression and anxiety, especially in women. These comorbidities lead to increased morbidity and poorer treatment outcomes. In 2017, men made up nearly 70% of opioid overdose deaths, with prescription opioids responsible for about 35% of deaths. The current study examined gender differences in individuals with prescription OUD to determine if depression and anxiety severity were associated with opioid use. **Methods:** Baseline data from a larger study of individuals who met DSM criteria for prescription OUD (N=38) were utilized. We examined participant demographics, depression symptoms (Beck Depression Inventory [BDI-II] and Inventory of Depressive Symptomatology [IDS]), anxiety symptoms (State Trait Anxiety Inventory [STAI]), and opioid use (Timeline Follow-Back [TLFB]) for percent days using (PDU) opioids. Independent samples t-tests, Chi-Square tests, and hierarchical linear regression were used to examine gender differences and substance use based on baseline anxiety and depressive symptoms. **Results:** Participants identified as 53% male and 83% Caucasian. Women were significantly older (41 vs. 30 years old,  $p = .004$ ) and more likely to smoke cigarettes compared to men ( $p = .005$ ). Education level ( $M = 12$  years) and unemployment rates (15% women vs. 10% men) were similar. Women had significantly higher anxiety levels on the STAI compared to men (46.0 vs. 39.1,  $p = .025$ ). Women evidenced more severe depression as evidenced by higher scores on the BDI-II (14.7 vs. 11.9) and IDS (22.9 vs. 20.9), and they reported more frequent opioid use (66.9% PDU vs. 56.8% PDU), but these differences were not statistically significant. Regression models revealed that depression and anxiety were not significant predictors of PDU and multicollinearity was present among predictors. **Conclusion:** Although preliminary, notable gender differences were observed among individuals with prescription OUD, with women being older, more likely to smoke cigarettes, and reporting higher anxiety than men. Baseline depression and anxiety symptoms did not significantly predict frequency of opioid use. Future studies may benefit from larger sample size, examination of additional measures of OUD, and address multicollinearity for improved model accuracy. This information may help inform gender-sensitive prevention and treatment efforts targeting OUD.

## POSTER #8

### Investigating the Anti-Pain Effect of Transcutaneous Auricular Vagus Nerve Stimulation (taVNS) in Patients with Chronic Post-Stroke Upper Extremity Pain

Fisayo Omonije, Xiaolong Peng, Ph.D., Brenna Baker-Vogel, B.S., Falon Sutton, B.S., and Bashar W. Badran, Ph.D.

**Background:** Approximately 800,000 Americans suffer from stroke annually, with 8% experiencing chronic post-stroke pain (CPSP). Neurostimulation therapies such as deep brain stimulation (DBS) and vagus nerve stimulation (VNS) show promising analgesic effects in CPSP but are costly and invasive. Recent advancements have enabled non-invasive stimulation of the vagus nerve—a method known as transcutaneous auricular vagus nerve stimulation (taVNS) which stimulates the ear. taVNS activates various subcortical afferent cranial nerve networks, which may lead to pain reduction, however, there is limited knowledge of its analgesic effects in CPSP. Thus, we describe an ongoing research study investigating the anti-pain effects of taVNS in stroke survivors with CPSP. **Methods:** We have now enrolled six chronic stroke survivors with CPSP (N=5 female, mean age $\pm$ SD: 56.8 $\pm$ 10.7 years) into this single-visit, randomized, sham-controlled, single-blinded trial. Participants were randomized to receive 30 minutes of either active (cymba/tragus; N=4) or sham (earlobe; N=2) taVNS. Each participant completed quantitative sensory testing (QST) to determine pain thresholds (pain, tolerance) respectively before and after ear stimulation. Thermal threshold changes were compared between pre- and post-stimulation using the change in degrees Celsius. **Results:** No adverse events were reported in this study. Thermal thresholds increased in both active and sham groups in the pain (active: 1.53 $^{\circ}$ C, sham: 1.91 $^{\circ}$ C) category. Tolerance thresholds increased in the active group but decreased in the sham group (active: 0.80 $^{\circ}$ C, sham: -0.61 $^{\circ}$ C). **Conclusion:** Our findings demonstrate that administering taVNS in poststroke pain populations is safe and feasible. Additionally, the preliminary findings suggest that auricular stimulation may modulate pain and tolerance thresholds in CPSP. Although it is too early to conclude, taVNS may be a promising anti-pain administration for CPSP.

## POSTER #9

### Does Enhanced Cognitive Processing Therapy with Lifesteps Reduce HIV Stigma and PTSD Symptoms Among People with HIV?: Preliminary Results from a Pilot Randomized Controlled Trial

Shibrika Pansy, M.S., Carla Kmett Danielson, PhD, Erin Bisca, MA, Nathaniel Baker, MS, Stephaine Amaya, Ph.D., Tayler Wilson, M.A., and Cristina López, Ph.D.

**Background:** People with HIV (PWH) report higher levels of trauma than the general population, with rates from 40 to 90%. Higher rates of traumatic exposure correspond with higher rates of Post-traumatic Stress Disorder (PTSD) in this population, with rates of PTSD in PWH estimated to be between 30 and 74%. Up to 64% of PLH endorse PTSD symptoms directly related to their HIV diagnosis. Our team recently enhanced Cognitive Processing Therapy (CPT), an evidence-based treatment for PTSD, with Lifesteps (L), an HIV medication adherence intervention, to create CPT-L to address PTSD and HIV outcomes. The purpose of the current study is to report on preliminary HIV stigma and PTSD findings among a small sample participating in a pilot randomized controlled trial comparing CPT-L to Standard of Care (SOC). **Methods:** PWH (N=41; Mean age=44.8; SD=12.3) who had experienced at least one traumatic event with current PTSD symptoms were recruited from local Ryan White HIV care clinics. Participants were randomized to receive CPT-L or SOC and completed validated assessments of PTSD and stigma at baseline and at 6-week post-baseline. **Results:** Following 6-weeks of treatment, CPT-L participants showed significant decreases in PTSD (CAPS: CPT-L  $\Delta=-17.7$ , SE=2.4 vs. SOC  $\Delta=-6.2$ , SE=4.0; Cohen's  $d=1.0$ ). Males receiving CPT-L had a significantly greater decrease in PTSD as compared to females receiving CPT-L (Males- $\Delta=-25.3$ , SE=4.2 vs. Females- $\Delta=-8.6$ , SE=4.7;  $d=1.61$ ) while the sex difference in the SOC group was null ( $d=0.06$ ). Further, participants identifying as Black had significantly greater decreases in CAPS scores during treatment as compared to all other races (Black- $\Delta=-13.8$ , SE=2.8 vs. All Others- $\Delta=-6.0$ , SE=3.9;  $d=0.65$ ). Changes in stigma total score from baseline to week 6 reached a Cohen's  $d$  of .97 within the CPT-L group but the between group difference was not significant ( $\Delta=6.22$ , SE=5.55, Cohen's  $d=0.43$ ,  $p=.273$ ). **Conclusions:** The results suggest CPT-L can be used as a tool to reduce HIV stigma and PTSD in PWH. Clinical implications and future research directions will be discussed.

## POSTER #10

### Neuronal Activity in Prefrontal Cortex Underlying Relapse in Substance Use Disorders

Aryan Parmar, Elizabeth M. Doncheck, Ph.D., Ian R. Grant, Ph.D., Lisa M. Green, Ph.D., Elizaveta V. Romanova, B.S., Josh Boquiren, B.S., Jade Baek, B.S., Michael D. Scofield, Ph.D., and James M. Otis, Ph.D.

**Background:** Dysregulated prefrontal cortex (PFC) activity is a hallmark of substance use disorder. While hypoactivity emerges at rest, hyperactivity is observed during craving and predicts relapse. The functional relevance of these paradoxical changes has been interrogated using the preclinical drug self-administration assay in rodents, which has confirmed that activity within a PFC subregion, the prelimbic cortex (PrL-PFC), is necessary for relapse. However, the PrL-PFC is a highly heterogeneous region comprised of diverse ensembles of neurons that can govern behavior, and the precise ensemble activity that modulates relapse is currently unknown. Moreover, whether different relapse triggers (i.e., drug-associated cues, stressors, the drug itself) provoke drug seeking through distinct or overlapping activity dynamics is also unknown. **Methods:** Here, we paired drug self-administration with simultaneous two-photon calcium imaging of PrL-PFC neurons to dissect neuronal activity dynamics during relapse. This approach allows for visualization of neuronal activity with single-cell, sub-second resolution while animals choose to seek drugs of their own volition. **Results:** Analyses reveal that, while PrL-PFC neuronal activity is highly heterogeneous, a relatively low percent of cells exhibit significant changes in activity during drug seeking. Cells that do show significant changes can be broken apart into unique clusters, but it appears that some neurons engage in cluster switching between modes of reinstatement. The functional relevance of these cluster and single-cell activity dynamics is unknown. **Conclusions:** Using single-cell optogenetics to control neuronal activity during behavior, we are currently investigating how these clusters and individual neurons may functionally regulate relapse to drug seeking. While these studies will resolve the discrete PrL-PFC activity that regulates relapse in substance use disorders, the findings may have more widespread implications for neuropsychiatric disorders characterized by dysregulated PFC activity and executive reasoning.

## POSTER #11

### Racial Disparities in Cesarean Delivery Rates among Low-Risk, Nulliparous, Term, Singleton, Vertex (NTSV) and an Institution's Efforts to Reduce Them

Sumaya Smarony, B.A., Emily Johnson, Ph.D., Michael Moxley, M.D., and Constance Guille, M.D.

**Background:** In the United States (US), birthing people of color are 3-4 times more likely to die during pregnancy or the postpartum year compared to their White counterparts. South Carolina ranks 8th highest for maternal mortality when compared to other states, and in 2020 Black birthing people were 4.2 times more likely to die than White birthing people. Higher cesarean deliveries is associated with increased morbidity and mortality for all birthing people, and low-risk, nulliparous, term, singleton, vertex (NTSV) pregnancies can increase this risk among birthing people of color. Nationally, rates of NTSV cesarean deliveries are higher among non-Hispanic Black women (31.3%) compared to non-Hispanic White women (26.3%). These findings highlight the importance of identifying and addressing racial disparities in maternal care as it relates to cesarean delivery rates among low-risk, NTSV pregnancies. **Methods:** In this study, a quality improvement project was conducted to reduce NTSV rates overall and determine if racial disparities in this metric would be reduced. The organization's leaders implemented institutional interventions like patient education measures, expansion of interpretive services, and efforts to improve health and language literacy. **Results:** Prior to the intervention, overall NTSV rates were 29%; 30% among Hispanic, 28% White, and 33% among Black birthing people. After implementation of the intervention, there was a statistically significant reduction in cesarean rates for NTSV from 29% in 2022 to 22% in 2023 ( $X^2(1, N=2138)=14.24, p < 0.001$ ). Clinically significant reductions in NTSV cesarean rates were observed for birthing people of all races. **Conclusion:** This reduction in one year is a major success by the institution and should be continually monitored to ensure sustained changes.

## POSTER #12

### Sign vs. Goal Tracking in Alcohol Use Disorder: Predicting problem alcohol use using a neurophysiological endophenotype of reward-based incentive salience attribution

Sophia Taber, Christopher T. Sege, Ph.D., Samantha LaPorta, B.A., Rhia Walton, M.A., and Lisa McTeague, Ph.D.

**Background:** Alcohol use disorder (AUD) is a leading cause of preventable death in the US yet remains difficult to treat. Identifying individual predictors of potential responses to AUD treatments may aid treatment tailoring to improve response rates. One candidate predictor examined in other populations is *incentive salience attribution* – the degree to which, in a cued reinforcement paradigm, individuals assign value to cues that predict reinforcing outcomes (i.e., *signs*) vs. only to the outcomes themselves (i.e., *goals*). As a first step in testing this as a predictor of AUD treatment, this study aimed to determine if incentive salience attribution differences arise in individuals with AUD. **Methods:** To date, 24 participants with AUD have completed an incentive salience attribution task in which they view numerous images varying in hedonic valence (pleasant, unpleasant, or emotionally neutral) and intensity, and one low-intensity image type is consistently followed by a food reward (M&M candy) 2s after image onset. To capture salience processing, electroencephalography is measured throughout the task and an event-related brain response to pictures whose amplitude scales with image salience (late positive potential, LPP) is compared across pleasant, unpleasant, neutral, and food-predicting image types. **Results:** As expected, participants showed consistent LPP amplitude enhancement for highly unpleasant,  $t(23)=9.4, p < .001$ , and highly pleasant,  $t(23)=8.6, p < .001$ , pictures compared to neutral pictures. Consistent with research in non-AUD samples, half ( $n=12$ ) of participants also showed LPP enhancement for low-intensity food-predicting pictures (i.e., signs) compared to neutral images,  $t(11)=7.6, p < .001$ , while the other participants showed no difference between food-predicting and neutral pictures,  $t(11)=-0.3, p=.744$ . **Conclusions:** Results demonstrate that individual differences in non-alcohol-related incentive salience attribution can be detected in individuals with AUD. Future investigations should determine if classifying individuals with AUD based on incentive salience attribution can predict relevant outcomes such as response to AUD treatment or risk of relapse.

## POSTER #13

### Moderating Role of Smoking on the Effect of N-Acetylcysteine on Frontal Glutamate Levels in Co-Occurring Bipolar and Alcohol Use Disorders

Courtland Woods, B.S., William Mellick, Ph.D., Kaiya Brand, B.S., Sara Hix, B.S., and James J. Prisciandaro, Ph.D.

**Background:** Preliminary findings from a randomized, double-blind, placebo-controlled crossover trial of gabapentin and n-acetylcysteine (NAC) for individuals with co-occurring bipolar and alcohol use disorders (BD+AUD) demonstrated that NAC treatment (2400 mg/day for 1 week) significantly reduced glutamate+glutamine (Glx) levels, and this effect was found to be stronger among cigarette smokers. This research project follows this work by examining clinical characteristics that may help contextualize the moderating role of smoking on NAC effects on Glx levels in BD+AUD. **Method:** Forty-two participants with BD+AUD were divided by smoking status (smokers,  $n = 15$ ; non-smokers,  $n = 27$ ) and baseline data (e.g., manic and depressive symptoms, 90-day timeline followback (TLFB), etc.) along with placebo (PBO) condition Glx, acquired via H-MRS with tissue fractions calculated through automated segmentation, were analyzed using independent samples  $t$ -tests (dimensional) and chi-square tests (binary) to examine group differences, and Pearson correlations to examine bivariate associations between key variables. **Results:** Glx levels did not significantly differ between smokers and non-smokers with BD+AD ( $p = 0.364$ ). However, groups significantly differed in terms of their percentage of drinking days (% drinking days) per TLFB data ( $p = 0.047$ ). Relatedly, examining Pearson correlations within groups showed that, specifically among smokers, there were strong negative associations with PBO Glx levels and both drinks/day ( $r = -0.53$ ,  $p = 0.043$ ) and % drinking days ( $r = -0.51$ ,  $p = 0.053$ ). **Conclusion:** The findings indicate that PBO treatment has not significantly impacted dACC Glx levels in smokers and non-smokers. Over the past 90 days, non-smokers had a higher percentage of drinking days compared to smokers, possibly due to various factors related to the interaction between smoking and drinking behaviors in individuals with AUD+BD. Differences in depression scales and BD type may be influenced by factors such as mood or current stressors.

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