



SCIENTIFIC MEETING GUIDE

MUSC Addiction Sciences Division

Diversity in Addiction Research Training (DART)

presents the

2022 Summer Research Day

Virtually on Zoom

In Person at the MUSC Institute of Psychiatry

Friday, July 29th, 2022

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



AGENDA

Friday, July 29, 2022

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

11:00-11:20am | | Virtual Trainee Presentations

11:30-12:30pm | | In-Person Poster Presentations

Virtually on Zoom

In-Person at the MUSC Institute of Psychiatry

KEYNOTE SPEAKER



Petros Levounis, MD, MA
Rutgers University



***Addiction in LGBTQ+ Communities
and Crystal Methamphetamine***

Friday, July 29, 2022

10:00 AM EDT – 11:00 AM EDT

Petros Levounis, MD, MA is President-Elect of the American Psychiatric Association, Professor and Chair of the Department of Psychiatry, and Associate Dean for professional development at Rutgers Medical School. Dr. Levounis came to Rutgers from Columbia University where he served as Director of the Addiction Institute of New York from 2002 to 2013. He is a leader in addiction and LGBTQ+ mental health research.

POSTER PRESENTATIONS

#1 || Examining Reproductive Healthcare Utilization among Those Who Use Substances

Presented by Madison P. Grant
Undergraduate Cellular and Molecular Biology student from Hampton University
Mentored by Jasara Hogan, PhD and Julianne Flanagan, PhD
Abstract Page 7



#2 || Relationship Between Perceived Stress & Alcohol Related Problems in Couples That Identify as White or Black

Presented by Amber M. Williams, MSW
Counseling Psychology Doctoral Student from Howard University
Mentored by Jasara Hogan, PhD and Julianne Flanagan, PhD
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#3 || Motor Activated Auricular Vagus Nerve Stimulation (MAAVNS) Improves Motor Kinematics in Stroke Patients with Upper Extremity Deficits

Presented by John H. Robinson
Undergraduate Public Health student from the University of South Carolina
Mentored by Bashar Badran, PhD
Abstract Page 8



#4 || Validation of FosTrap Technology in an Animal Model of Binge Alcohol Drinking

Presented by Andrew de Arellano
Undergraduate Biology student from the University of South Carolina
Mentored by Jen Rinker, PhD
Abstract Page 8



#5 || Examining the Association Between Alcohol Demand and Alcohol-Related Consequences in Adolescents

Presented by Helen Liu, BS
Medical student from the Medical University of South Carolina
Mentored by Lindsay Squeglia, PhD
Abstract Page 9



#6 || Identifying High Priority Research Needs for Acetaminophen Use among Black/Hispanic Populations with Opioid Use Disorder and Liver Disease

Presented by Autumn Barnes, BA
Post-Undergraduate student from the Research Institution, RTI International
Mentored by Amber Jarnecke, PhD
Abstract Page 9



#7 || Do Working Memory Differences Exist Dependent Upon Dorsolateral Prefrontal Cortex or Medial Orbitofrontal Cortex Repetitive Transcranial Magnetic Stimulation Treatment for Smoking Cessation?

Presented by Tracy D. Dubin, MA
Post-Graduate student from the University of California, Irvine
Mentored by Xingbao Li, MD, MSCR
Abstract Page 10



#8 || Ethnoracial Effects in Neural Reactivity to Alcohol Cues in Comorbid PTSD and Alcohol Use Disorder (AUD)

Presented by Pearl B. Ayiku
Undergraduate Psychology student from the University of South Carolina
Mentored by Jane Joseph, PhD
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#9 || Examining Racial, Ethnic, and Sex Differences as Predictors of Cannabis Use Disorder Treatment Retention

Presented by Isabeau G. Brathwaite-Burnett
Undergraduate Biological Sciences and Psychology student from the University of Chicago
Mentored by Erin McClure, PhD and Rachel Tomko, PhD
Abstract Page 11



#10 || Disparities in Access to Pain Rehabilitation Programs for Patients with Medicaid

Presented by Brigette K. Flores
Undergraduate Biology student from Notre Dame of Maryland University
Mentored by Kelly Barth, DO
Abstract Page 11



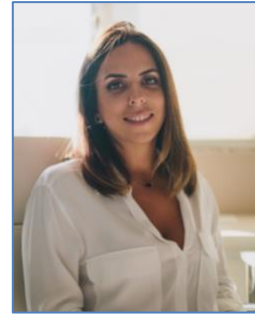
#11 || Default Mode Network Resting-State Functional Connectivity in Individuals with Bipolar Disorder and Co-occurring Alcohol Dependence: Results from a 2x2 Factorial Design

Presented by Jade de Araújo, BS

Graduate student in Behavioral Sciences from University of Brasília

Mentored by William Mellick, PhD

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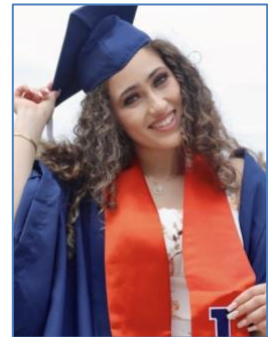
#12 || Impacts of the COVID-19 Pandemic on Depression and Opioid Use among Hispanic and Latinx Individuals with Opioid Misuse

Presented by Leeann Xoubi, BS

Medical student from Midwestern University Chicago College of Osteopathic Medicine

Mentored by Amber Jarnecke, PhD

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#13 || An Open Label Study to Assess the Feasibility and Tolerability of Accelerated Theta Burst Repetitive Transcranial Magnetic Stimulation for the Treatment of Post-Partum Depression

Presented by Sonali Parmar, BS

Medical student from the Medical University of South Carolina

2022 DART FLEX Trainee

Mentored by Lisa McTeague, PhD

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#14 || Dose Response of Accelerated Intermittent Theta Burst Transcranial Magnetic Stimulation (TMS) to Promote Cognitive Performance and Resilience Among Healthy Participants

Presented by Christopher Baltimore, BS

Medical student from the Medical University of South Carolina

2022 DART FLEX Trainee

Mentored by Lisa McTeague, PhD

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ABSTRACTS

POSTER #1

Examining Reproductive Healthcare Utilization among Those Who Use Substances

Madison P. Grant, Amber M. Williams, MSW, Julianne C. Flanagan, PhD, Jasara N. Hogan, PhD

Background: People who use substances and those seeking reproductive healthcare both face barriers and stigma for treatment. Preliminary evidence suggests that there is an association between substance use and reproductive healthcare utilization, but research to date has been geographically limited with small samples. As a result, it is difficult to determine generalizability of these findings. The present study aims to test associations using a nationally representative data set between those who use substances and their access to reproductive healthcare. **Methods:** Participants (N=6141) ranged from ages 15-49. The CDC's National Survey of Family Growth was conducted from September 2017-September 2019. The survey was conducted through in-person interviewing, self-administered surveys, and computer-assisted personal interviewing (CAPI). **Results:** There were significant correlations between tobacco, alcohol, and substance use (e.g., marijuana, cocaine, methamphetamine, and non-prescribed injections) with reproductive healthcare services utilization. There were significant positive correlations between binge drinking behaviors and the use of reproductive health services (i.e., birth control, emergency contraception, and sexually transmitted disease (STD) testing services). Substance use, with the exceptions of crack cocaine and non-prescription injections, displayed significant positive correlations with the utilization of STD testing services. Significant negative correlations were found between tobacco, marijuana, and cocaine use and prenatal care. Nearly a third (2,025) of all participants reported no reproductive healthcare utilization. **Conclusion:** Taken together, findings suggest more work may be needed to expand treatment options in overlooked populations and address stigmas around substance use and reproductive health. This study can be replicated for future survey results to monitor patterns in utilization given ongoing changes in federally-protected access to reproductive health care.

Poster #2

Relationship Between Perceived Stress & Alcohol Related Problems in Couples That Identify as White or Black

Amber M. Williams, MSW, Madison P. Grant, Jasara N. Hogan, PhD, Julianne C. Flanagan, PhD

Purpose: Existing literature establishes a robust association between romantic relationship stress and elevated levels of alcohol use. This association may be particularly salient for couples with minoritized identities as racial inequities lead to greater social disadvantages (e.g., poverty & stigma). Consequently, racial discrimination has been linked to increased alcohol use and alcohol-related problems. Furthermore, prior research has found an association between perceived racial stress and elevated levels of alcohol consumption. The current study examines the relationship between race, perceived stress, and alcohol-related problems among community couples. **Methods:** Participants included 92 (N= 184) couples that self-identified their race as either Black or White. The sample included same- and mixed-sex couples with shared racial identities. At least one partner met criteria for alcohol use disorder and all couples reported a history of intimate partner violence. The Alcohol Use Disorder Identification Test (AUDIT) was used to measure alcohol use related problems. Additionally, the sample's stress levels were assessed using the Perceived Stress Scale (PSS). **Results:** To test these associations, we estimated a two-level multilevel model. Alcohol-related problems were regressed onto perceived stress moderated by racial identity (i.e., Black or White). Surprisingly, there were no significant associations between alcohol-related problems, racial identity and perceived stress. **Conclusion:** Given the sample characteristics, it is possible these participants experience higher than average levels of perceived stress which may account for the lack of associations observed. Limitations and future directions will be discussed.

POSTER #3

Motor Activated Auricular Vagus Nerve Stimulation (MAAVNS) Improves Motor Kinematics in Stroke Patients with Upper Extremity Deficits

John H. Robinson, Brenna L. Baker-Vogel, BS, Patricia P. Finetto, Christian Finetto, OTR/L, Steven A. Kautz, PhD, Bashar W. Badran, PhD

Background: Around 800,000 Americans experience a stroke each year and over 85% of that number will experience motor function impairments resulting in poorer quality of life and reduced well-being. Improving motor function post-stroke is achieved through therapist guided motor rehabilitation training, however effects are moderate and take time to develop. We propose using transcutaneous auricular vagus nerve stimulation (taVNS) to enhance neuroplasticity and accelerate restoration of motor function in post-stroke rehabilitation. **Methods:** We enrolled 18 participants (n=18, 8 women) who have experienced a stroke and have upper limb functional impairments into a four-week clinical trial exploring the use of taVNS paired with rehabilitation to improve motor function. In a specific subanalysis (n=10, 2 women), we measured the motor kinematics improvement of the participants using motion capture technology before and after taVNS-paired rehabilitation. Using 36 active markers and 10 cameras, motion capture assessments were made on the affected arm. Participant's movement was captured during three tasks: forward reach, grasp, and overhead reach and we assessed the following metrics: hand velocity, normalized hand jerk, trunk compensation, shoulder elevation, elbow extension and wrist flexion. **Results:** The mean maximum hand velocity improved in all movements (overhead: 0.16 m/s, forward: 0.08 m/s, grasp: 0.09 m/s). Normalized hand jerk was also reduced in all movements (overhead: -2.7, forward: -0.85, grasp: -1.92). The only changes in trunk displacement were demonstrated in the grasp task (3.99 mm reduction) in maximum trunk displacement. We will provide additional kinematics metrics in the poster. **Conclusions:** TaVNS is a safe and effective therapy to pair with motor rehabilitation. Furthermore, our findings suggest that four weeks of taVNS-paired motor rehabilitation increases hand velocity, as well as reduces jerk and trunk displacement in upper extremity post stroke.

POSTER #4

Validation of FosTrap Technology in an Animal Model of Binge Alcohol Drinking

Andrew de Arellano, Kathryn Carter, BS, Thomas Wukitsch, MS, Amy Ward, BS, & Jennifer Rinker, PhD

Background: C-Fos is an immediate early gene expressed in neurons that acts as a transcription factor when synthesized in response to stimulation. FosTRAP (c-Fos Targeted Recombination in Active Populations), allows for permanent expression of a fluorophore, tdTomato, in transgenic mice when stimulated and 4-hydroxytamoxifen (4-OHT), an estrogen receptor antagonist, is administered. Previous studies have shown the optimal time to inject 4-OHT is immediately after a behavior of interest, however, it is unknown if this is true for consumption of alcohol. The primary aim of this study was to confirm this timing. **Methods:** Two cohorts of FosTRAP mice were used. Cohort 1 (n = 4) was deprived of light for 48 hours after which one half was exposed to one hour of bright light while the other half remained in the dark. The entire cohort was then injected with 4-OHT. In cohort 2 (n = 10), half the mice drank ethanol (20% v/v) for 2 hours/day, 5 days/week for 2 weeks. On the final day of drinking, 4-OHT was administered to the entire cohort 30 minutes into the drinking session. Five days later brain tissue was extracted and sliced to visualize c-Fos in the visual cortex (cohort 1) and reward-related brain areas (cohort 2). **Results:** Data collection is currently underway, but we anticipate that in cohort 1, we will see significantly more TRAPed cells in the visual cortex of the animals that were exposed to light compared to those that remained in the dark. Similarly, we expect that animals that had access to alcohol will show increased TRAPed cells in reward related brain regions (e.g., nucleus accumbens and prefrontal cortex). **Conclusion:** Once collected, data from this study will help optimize the methods for future studies utilizing FosTRAP mice and will identify key brain regions involved in binge-alcohol drinking.

POSTER #5

Examining the Association Between Alcohol Demand and Alcohol-Related Consequences in Adolescents

Helen Liu, BS, ReJoyce Green PhD, Samuel F. Acuff, MS, Pamela L. Ferguson, PhD, Anna E. Kirkland, PhD, Brittney D. Browning, BS, Anna M. Maralit, BA, Rachel L. Tomko, PhD, Kevin M. Gray, MD, & Lindsay M. Squeglia, PhD

Background: Adolescent alcohol use is common and associated with long-term risk for alcohol use disorder (AUD). Principles of behavioral economics suggests that hazardous alcohol use is, in part, a result of the overvaluation of alcohol. The Alcohol Purchase Task (APT) captures motivation for alcohol via demand as participants indicate the number of drinks they would consume at a range of prices. APT indices have been associated with negative consequences in adults, however, this has not been extensively explored among adolescents. This study aimed to examine the association between five APT demand indices and alcohol consequences within heavy drinking adolescents. **Methods:** Participants ($N=45$, ages 17-19) met criteria for heavy drinking (4-8 drinking occasions per month, ≥ 3 standard drinks per occasion) and completed: the 17-item APT, Timeline Follow Back (TLFB), Diagnostic and Statistical Manual of Mental Disorders (DSM-5) semi-structured interview, AUD Identification Test (AUDIT), and the Rutgers Alcohol Problem Index (RAPI). Five APT demand indices were computed: intensity (standard drinks at \$0), O_{max} (maximum alcohol expenditure), P_{max} (price point associated with O_{max}), breakpoint (1st price point where consumption reaches zero), elasticity (rate of consumption decreasing as price increase). Univariable and multivariable linear regression assessed associations between demand indices and alcohol-related consequences (AUD symptoms, AUDIT score, RAPI). **Results:** Greater intensity predicted 1) greater number of AUD criteria endorsed ($\beta=0.209$, $SE=0.083$, $p=0.016$) after adjusting for age and drinking days (TLFB), and 2) AUDIT summary score ($\beta=0.637$, $SE=0.194$, $p=0.002$) after adjusting for age and socioeconomic status. Other demand indices were not significantly related to AUD or AUDIT; additionally, none of the five indices were related to RAPI ($ps \geq 0.25$). **Conclusion:** Consistent with adult findings, intensity was associated with alcohol consequences. Greater motivation for alcohol was related to severity of AUD, suggesting the APT may be a valid marker of problematic alcohol use in adolescents.

POSTER #6

Identifying High Priority Research Needs for Acetaminophen Use among Black/Hispanic Populations with Opioid Use Disorder and Liver Disease

Autumn Barnes, BA, Lissette Saavedra, PhD, Amber M. Jarnecke, PhD

Background: Opioid use disorder (OUD) poses significant clinical concerns for individuals with liver disease (LD). Medications for OUD (MOUD), particularly Naltrexone, must be carefully considered for individuals with co-occurring LD. Psychosocial factors influence treatment and outcomes for historically marginalized populations, particularly Blacks and Hispanics, with OUD and LD. Acetaminophen is commonly recommended for pain management for these conditions; however, gaps in literature for acetaminophen use among at risk and historically marginalized populations with OUD and LD. **Methods:** This study examines electronic health record (EHR) data to characterize individuals with OUD and LD by acetaminophen use. Using a literature review and consultation with diverse industry experts, it also identifies and prioritizes future research needs. **Results:** Examination of the EHR data identified $N=631$ individuals with OUD and LD, prescribed MOUD. Most individuals had acetaminophen documented ($n=578$). Whites were less likely to have acetaminophen documented ($p<0.001$); no differences in acetaminophen were found among individuals of other ethnracial identities. Age/sex-matched group analyses suggest individuals without acetaminophen had greater liver enzyme values, and this reached statistical significance for ALT ($p=0.019$). Literature review and consultation with industry experts identified future research and clinical needs for this population: a) if and how acetaminophen and Naltrexone have an additive hepatotoxic effect on liver functioning; b) clinical relevance, training, and standard guidelines for assessing liver function when considering Naltrexone and acetaminophen for OUD; c) understanding how sociocultural factors impact dissemination of information, treatment, and outcomes for historically marginalized people with OUD and LD; d) understanding how the causation and timing of LD (e.g., due to Hepatitis C) are associated with OUD. **Conclusions:** There are some differences among individuals with OUD and LD, prescribed MOUD, by acetaminophen use; however, more research, aligned with the topics identified by literature review and consultation with industry experts, is needed.

POSTER #7

Do Working Memory Differences Exist Dependent Upon Dorsolateral Prefrontal Cortex or Medial Orbitofrontal Cortex Repetitive Transcranial Magnetic Stimulation Treatment for Smoking Cessation?

Tracy D. Dubin, MA & Xingbao Li, MD, MSCR

Background: In the United States, cigarette smoking yearly claims about one in every five deaths, with mortality rates continuously rising. High-frequency repetitive transcranial magnetic stimulation (HF-rTMS) over the dorsal lateral prefrontal cortex (DLPFC) as well as low-frequency (LF-rTMS) over the medial orbitofrontal cortex (mOFC) has historically demonstrated high efficacy in curbing nicotine cravings and worked as progressive neurostimulation therapy for smoking cessation. While rTMS reports positive findings for smokers and those suffering from tobacco use disorder (TUD), its consequential effects upon working memory are not well known. This study investigated rTMS's use in smoking cessation in DLPFC and mOFC placements to uncover participants' potential cognitive memory impairments, as tested using the N-back working memory task. **Methods:** The Medical University of South Carolina conducted a double-blind, sham-controlled, randomized clinical trial of participants (n=18, 9 female) aged 49.8 [9.7] (mean [SD]) from the Charleston, South Carolina vicinity who voluntarily enrolled for daily rTMS treatment for smoking cessation totaling 15 sessions over a 3 week period. The rTMS was either sham or active MRI-guided to the DLPFC (10 Hz, 3000 pulses each session) for facilitation protocol or to the mOFC (1 Hz, 900 pulses each session) for inhibition protocol. N-back studies occurred once a week, prior to rTMS treatment #1, #6, #11, #15, and 1 month after the 15th rTMS. **Results:** 16 participants started treatment. 9 received DLPFC rTMS treatments, and 7 received mOFC rTMS treatments. 12 participants (7 DLPFC vs. 5 mOFC) were included for the analysis. Mixed model results showed significantly different correct trials between 0-back (5.29±0.31), 1-back (3.27±0.31), and 2-back (2.21±0.31), (p < 0.01). A trend difference existed between DLPFC treatment (3.24±0.24) and mOFC treatment (3.93±0.25), (p=0.054). No significant change was found between treatment weeks. Response time did not show significant difference between DLPFC and mOFC. **Conclusions:** Initial findings softly suggest that DLPFC rTMS and mOFC rTMS affect working memory, as measured with N-back. Noticeably, both DLPFC and mOFC included sham and active treatments.

POSTER #8

Ethnoracial Effects in Neural Reactivity to Alcohol Cues in Comorbid PTSD and Alcohol Use Disorder (AUD)

Pearl Ayiku, Sudie E. Back, PhD, Julianne C. Flanagan, PhD, Amber M. Jarnecke, Delisa Brown, PhD, Jane Joseph, PhD

Background: AUD and PTSD commonly co-occur. The estimated lifetime prevalence rate of AUD among US adults is 29.1%, and AUD is associated with 30% increased odds of PTSD. Although AUD has a lower prevalence rate among Black populations, Black individuals who drink are more likely to experience more severe AUD symptoms and adverse drinking consequences than their white counterparts. This study aims to determine if there is a difference in neural responses to alcohol, trauma, and neutral auditory cues based on race and alcohol use severity by race for comorbid PTSD/AUD. **Methods:** Baseline measures assessed AUD and PTSD severity among participants (N = 51; 35% Black) who met criteria for current AUD and PTSD. A functional magnetic resonance imaging scan was conducted, where patients were presented with personalized alcohol, trauma, and neutral cues. Statistical analysis of fMRI data was performed using FMRI Expert Analysis Tool (FEAT). **Results:** For the Alcohol > Neutral contrast, higher percent drinking days were associated with greater activation in the supramarginal gyrus/angular gyrus for Black participants as compared to white participants. For the Alcohol > Trauma contrast, higher percent heavy drinking days were associated with greater activation in the precuneus cortex/cingulate gyrus for Black participants compared to white participants. **Conclusion:** Greater activation of regions primarily associated with memory and attention for Black individuals suggests that habitual alcohol use may enhance positive memories about alcohol and feelings associated with drinking alcohol for this population. Exposure to alcohol cues may trigger memories of drinking, which could be linked to alcohol craving. Although preliminary, the differences observed in neural reactivity could inform how treatment can be tailored to address the unique needs of individuals with AUD/PTSD by racial identity and create more effective interventions.

POSTER #9

Examining Racial, Ethnic, and Sex Differences as Predictors of Cannabis Use Disorder Treatment Retention

Isabeau G. Brathwaite-Burnett, Nathaniel L. Baker MS, Rachel L. Tomko PhD, Aimee L. McRae-Clark PharmD, Kevin M. Gray MD, Erin A. McClure PhD

Background Treatment trials for cannabis use disorder (CUD) lack racial, ethnic, and sex representation. This limits the generalizability of study results and reduces access to effective therapies for underrepresented groups. While racial, ethnic, and sex differences have been explored for treatment outcomes, no literature to date has explored if underrepresented groups are being retained in research at the same rates as their non-minority counterparts. The goal of this secondary analysis is to identify racial, ethnic, and sex differences in retention in CUD treatment trials.

Methods This secondary analysis used a combined data set of seven pharmacotherapy treatment trials for CUD conducted at MUSC (five completed, two enrolling; N=948). The final dataset is 30% female; 27% African American; 11% Hispanic/Latinx. Retention was defined as completing the end of treatment visit (yes/no) and number of days engaged in the study. Mixed effects logistic regression models were utilized to assess for differences in study completion across minority groups. **Results** In adjusted models, Non-Hispanic White participants were more likely to complete treatment than all others combined (66% vs. 59%; OR=1.4 (1.0, 1.9); p=0.04). This difference is primarily driven by Non-Hispanic White females (73% v. 58%; OR=2.0 (1.2, 3.4); p=0.01) as compared to all minority races. Non-Hispanic Black/African American participants had similar odds in treatment completion compared to other minority races (p=ns). Although Non-Hispanic White females had greater odds of completion than minority females, there were no overall differences between males and females (62% vs. 66%; OR=0.8 (0.6, 1.1); p=0.17). **Conclusion** Results suggest that sex differences do not independently contribute to study retention, but that racial and ethnic minorities have lower retention rates- showing that one of the barriers to diversity in research is retention, not just recruitment. Future retention efforts in CUD treatment trials should ensure special attention is paid to retaining racial/ethnic minorities.

POSTER #10

Disparities in Access to Pain Rehabilitation Programs for Patients with Medicaid

Brigette K. Flores, Julia Rodes, and Kelly S. Barth, DO

Background: Chronic pain conditions are a rising health concern, and Medicaid beneficiaries have been disproportionately affected. Yet most of the interdisciplinary pain rehabilitation programs continue to not accept patients with Medicaid insurance. Additionally, those that accept Medicaid continue to have certain required conditions that must be met such as having a referral before receiving any treatment. The aim of this study was to evaluate the access to various pain rehabilitation programs across the nation for potential Pain Rehabilitation Patients with Medicaid. **Methods:** Contact was made with 12 different Pain Rehabilitation Programs from 12 different states utilizing a mock-patient script for a patient with Medicaid. To maintain anonymity, calls were made with an alias name. **Results:** Overall, 50% of the clinics reported that they did not accept Medicaid insurance, while the other 50% reported they did accept in-state Medicaid as a form of payment. **Conclusion:** The findings further affirm the need for more pain rehabilitation programs to accept Medicaid participants as well as the need for more access to non-opioid and non-surgical treatments for chronic pain.

POSTER #11

Default Mode Network Resting-State Functional Connectivity in Individuals with Bipolar Disorder and Co-occurring Alcohol Dependence: Results from a 2x2 Factorial Design

Jade de Araújo, BS, William Mellick, PhD, Helena Brenner, BS, Sara Hix, BS, and James J. Prisciandaro, PhD

Background: Abnormal default mode network (DMN) resting-state functional connectivity (rsFC) has been reported in individuals with bipolar disorder (BD) and alcohol dependence (AD), particularly between the medial prefrontal cortex (mPFC) and the posterior cingulate cortex (PCC). The present study represents the first known investigation of DMN rsFC in individuals with co-occurring BD and AD (BD+AD). **Methods:** One-hundred and four participants who met DSM-IV-TR diagnostic criteria for BD+AD ($n=23$), BD alone ($n=28$), AD alone ($n=25$), or no diagnosis ($n=25$) completed a baseline assessment and returned for rs-fMRI scanning after demonstrating ≥ 1 week of abstinence from alcohol/drugs via blood serum and urine biomarkers. Two-by-two general linear univariate models of Fisher's z-scores were tested to examine rsFC between-group differences for each pair of DMN regions (mPFC, PCC, and bilateral angular gyri). Bivariate Pearson correlations between z-scores and symptom measures were explored within groups. **Results:** Main effects of BD and AD and the BD x AD interaction terms were non-significant in two-by-two models. Connectivity across bilateral angular gyri and the PCC positively correlated with depressive symptoms in BD+AD group ($r's \geq 0.44$, p -values ≤ 0.034). The directionality of PCC-mPFC connectivity and alcohol craving correlations varied between AD ($r = -0.54$, $p = 0.005$) and BD+AD groups ($r = 0.52$, $p = 0.011$). **Conclusions:** Reducing angular gyrus functional connectivity may improve depressive symptoms in individuals with BD+AD as it has in prior treatment studies of major depressive disorder. Given associations with both depressive symptoms and alcohol craving, PCC functional connectivity may represent a putative treatment target for concurrent symptom reduction in BD+AD.

POSTER #12

Impacts of the COVID-19 Pandemic on Depression and Opioid Use among Hispanic and Latinx Individuals with Opioid Misuse

Leeann Xoubi, BS, Amber M. Jarnecke, PhD

Background: The COVID-19 pandemic has negatively affected vulnerable populations and exacerbated health and social disparities. Rates of opioid use disorder (OUD) are rising in the U.S., but opioid use among Hispanic/Latinx communities is still relatively understudied. Separate lines of research have previously documented significant impacts of the pandemic on individuals with OUD and Hispanic/Latinx populations, but additional studies are required to understand the effects of the pandemic on Hispanic/Latinx individuals who report opioid misuse. The current study examines the impacts of the pandemic and how it is associated with depressive symptoms and opioid use among Hispanic/Latinx individuals. **Methods:** Participants reporting past-year opioid misuse were enrolled in an online study ($N=126$). Participants completed questionnaires related to the impacts of the pandemic, depressive symptoms, and opioid use. Analyses were limited to individuals who identified as Hispanic/Latinx ($n=50$). Descriptive statistics characterized the sample and independent linear regression models, accounting for age and gender, examined how concerns related to the COVID-19 pandemic predicted depressive symptoms and past 30-day prescription opioid and heroin use. **Results:** A substantial proportion of the sample reported that they had COVID-19 (44%), that someone close to them had COVID-19 (24%), or that someone close to them died related to COVID-19 (20%). Some participants reported that the pandemic impacted their housing (14%) or access to healthcare services (10-18%). Overall concerns about the pandemic were positively associated with depressive symptoms ($B=0.27$, $p<0.001$) but not prescription opioid ($B=-0.06$, $p=0.603$) or heroin ($B=-0.02$, $p=0.900$) use in the past 30-days. **Conclusion:** Findings from this study highlight concerns about the relationship between the COVID-19 pandemic and depressive symptoms among Hispanic/Latinx individuals reporting past-year opioid misuse. Future work should mitigate the effects of the pandemic on Hispanic/Latinx individuals who use opioids.

POSTER #13

An Open Label Study to Assess the Feasibility and Tolerability of Accelerated Theta Burst Repetitive Transcranial Magnetic Stimulation for the Treatment of Post-Partum Depression

Sonali Parmar, BS, Anna Ehrhardt, MD, Edie Douglas, A.J. Manett, MD, Suzanne Kerns, MD, Gregory Sahlem, MD, James Fox, MD, Constance Guille, MD, Lisa M. McTeague, PhD

Background: Postpartum depression (PPD) is the most common complication of childbirth, affecting 20% of new mothers. PPD can adversely affect maternal-infant bonding, breastfeeding, and child development. Current therapies for PPD include pharmacotherapy, electroconvulsive therapy (ECT), and repetitive transcranial magnetic stimulation (rTMS). Concerns about the potential for antidepressants to cross over into breast milk or ECT to induce memory loss make rTMS, a treatment with relatively fewer side effects, a more attractive option. Furthermore, recently the delivery of rTMS has been “accelerated” to reduce overall burden via multiple sessions per day. The purpose of this study is to determine the feasibility of accelerated iTBS for PPD. **Methods:** Study collection is ongoing. To date four participants were recruited from MUSC Women’s Reproductive Behavioral Health Program (WRBH). Three participants completed six active intermittent theta burst rTMS sessions to dorsolateral prefrontal cortex on each of three days in a week (600 pulses; 120% resting motor threshold; 15-minute intersession interval; Target via F3). Pre- to post-rTMS participants completed the Hamilton Depression Rating Scale (HAM-D) interview as well as questionnaires: Generalized Anxiety Disorder-7 (GAD-7), Patient Health Questionnaire-9 (PHQ-9), and Edinburgh Postnatal Depression Scale (EPDS). **Results:** Pre- to post-rTMS, reduction in clinician-rated HAM-D scores ranged from 23-65% at week one, 45-80% at week two, and 30-87% at week three. Two of the three completers reached responder status (i.e., greater than 50% symptom reduction) by week two, which persisted to week three. Across self-report measures of depression and anxiety (GAD-7, PHQ-9, EPDS) all three participants were responders by week two, which persisted to week three. **Conclusions:** Accelerated rTMS appears feasible and tolerable for the treatment of PPD and preliminary results suggest significant reductions in depression and anxiety. These reductions emerge after only three days of treatment and symptom reductions continue up to three weeks post-treatment.

POSTER #14

Dose Response of Accelerated Intermittent Theta Burst Transcranial Magnetic Stimulation (TMS) to Promote Cognitive Performance and Resilience Among Healthy Participants

Christopher A. Baltimore, BS, Joseph Tidwell, Claire Cox, BA, Bridgette Holland, BS, James W. Lopez, BS, Holly H. Fleischmann, BS, Kevin A. Caulfield, Christopher T. Sege, PhD, Mark S. George, MD, Donna Roberts, MD, Lisa M. McTeague, PhD

Background: The left dorsolateral prefrontal cortical (dlPFC) site typically targeted with repetitive transcranial magnetic stimulation (rTMS) is seated in an area of cortex integral to intact higher order cognition (i.e., executive function). Even among healthy individuals for whom neurocognitive performance has a relatively restricted range, improved working memory performance has been observed after only a single session of excitatory rTMS. In the current study we explored the safety and acceptability as well as the potential dose-response curve of accelerated rTMS on cross-domain cognitive performance and resilience among healthy participants. **Methods:** Forty healthy participants were randomized to ten different accelerated doses (up to 10 active intermittent theta burst rTMS sessions/day; Total 50 sessions) of rTMS to left dlPFC). Intermittent theta burst rTMS was delivered in 600 pulses, up to ten sessions per day over five days with a 15-minute intersession interval. At pre-rTMS, immediately post-rTMS, and one month follow up participants completed comprehensive neuropsychological and neuropsychiatric assessment, ratings of treatment acceptability and credibility, and structural MRI. **Results:** No study-related adverse events occurred as indexed in MRI, neuropsychological, neuropsychiatric or subjective quantitative or qualitative report of side effects. Significant improvement in fluid cognition was observed pre- to post-rTMS with increasing efficacy at higher doses on the WinSCAT and NIH Cognition Toolbox. In contrast, no changes were observed for crystallized cognition. No changes were observed pre- to post-rTMS in relation to perceived stress, anxiety and depression potentially associated with low symptom endorsement in this healthy sample. **Conclusions:** This is the first comprehensive, multimodal examination of the safety and dose-response of accelerated rTMS in intact cognition, or any condition. Findings suggest that with high-dose accelerated rTMS is safe in healthy participants. Furthermore, it is possible to improve cognitive performance, in particular fluid cognition, among healthy participants.

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