

Institute for Women's Health 19th Annual Women's
Health Research Day
Poster Abstracts



1. Social isolation lowers synaptic mitochondrial respiration in female, but not male, California mice

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Exploring the mechanisms affected by social isolation in a social and genetically monogamous rodent may provide insight into loneliness as a stressor. As mitochondria are implicated in the stress response, we investigated the influence of social isolation on mitochondria respiration in the monogamous *Peromyscus californicus* (California mouse) using Agilent's Cell Mito Stress test. Three housing paradigms were investigated for adult male and female mice: same sex paired housing, 10-day social isolation or a 30-day social isolation. All mice were tested for anxiety-like behavior in a 20-minute open field assay at the end of the housing paradigm. Housing status did not influence open field outcomes for either sex. The day following open field, functional mitochondria were isolated from the hippocampus and terminal organ weights were assessed. Peripheral metrics were altered by housing status such that isolated males displayed a higher normalized adrenal and spleen weight. Housing status did not alter synaptic mitochondria respiration in male California mice. Separated females displayed an overall decrease across mitochondrial dynamics. We extended the isolation period for females, and observed that a decrease in respiration remained at 60 days of social isolation. These data indicate that males are more sensitive to the influence of isolation on peripheral changes, while females showed a robust decrease in hippocampal respiration, but neither is associated with detectable changes in anxiety-like behavior. Future work should determine if the social isolation periods leveraged in this study were perceived as a maladaptive chronic social stressor or a prompt to adapt to new circumstances.

2. Project Belong: Improving Reentry Outcomes for Juvenile Justice-Involved Youth through Supported Employment and Trauma-Based Care

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Recidivism rates remain critically high for justice-involved young adults with behavioral health disorders. Project Belong addresses this through evidence-based interventions combining supported employment, trauma counseling, peer support, community reintegration and case management for 75 young adults transitioning from several local correctional facilities to Richmond, Virginia. We developed a multidisciplinary VCU internship program equipping future professionals with essential skills in social work and mental health counseling, criminal justice, and vocational rehabilitation. Our intervention emphasizes gender-responsive strategies, recognizing that girls in juvenile justice systems face unique challenges. Girls experience higher rates of exclusionary discipline, sexual victimization and trauma compared to boys, yet receive fewer evidence-based trauma-focused interventions despite their serious trauma histories. They demonstrate greater risk of co-occurring behavioral health disorders and emotional distress, making trauma-informed and mental health-focused components especially critical for female reentry. Girls benefit from relational and mentoring approaches essential for addressing deeper trauma and enhancing program engagement. Despite these needs, girls typically receive fewer vocational or job-readiness services than boys. We are studying Project Belong's impact on employment, recidivism, and other outcomes using a hybrid implementation open-trial design to understand the implementation issues and effectiveness of our intervention. VCU's research team and Project Belong interventionists collect data at 0, 6, 12 months post-release. By growing the evidence-base for highly feasible, highly replicable interventions, Project Belong promotes adoption and dissemination of effective practices for juvenile justice facilities and any justice involved entity to optimize outcomes during critical windows following release for high-risk young adults who have behavioral health disorders.

3. Bridging Traditional Wisdom and Modern Care through Community-Based Learning in Guatemala

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Community-based learning provides an experiential framework for understanding healthcare practices by immersing participants in real-world contexts. This method is particularly valuable when exploring traditional medicine, as it encourages learners to engage with cultural practices that may be overlooked in western medical education. An example is the work of the traditional midwives in Indigenous communities in the Highlands of Guatemala. These midwives play a crucial role in maternal, infant, and population health. This poster reflects knowledge gained during the most recent IWH-sponsored Women's Health & Healing trip. By integrating modern healthcare concepts with the wisdom of the midwives, community-based learning initiatives offer an enriched perspective on holistic care. This approach fosters cultural competence, respect, and safety, enhancing collaboration between traditional and western practitioners.

4. Health Disparities and Black Birthing People: Where We Are and Where We CAN Go!

Asma Almutairi, School of Nursing; Jenae Kocisnski, CHS Sociology, Divya Amancherla, Informatics and Honors College; Marilyn Arikkat, CHS Biology, Pooja Balamurugan Biology and Honors College; Alfreda Harder, School of Nursing; Jala Harris, School of Nursing; Kayla Johnson, CHS Biology; Sylvie Lister, CHS Sociology; Tobi Ojo, Health Sciences and Honors College; Zainia Salman, School of Nursing; Kezia Yeboah, CHS Sociology; Breonna Riddick, Birth in Color; Kenda Sutton-El, Birth in College; Susan Bodnar-Deren, CHS Sociology; Kristina Hood CHS Psychology; and Nancy Jallo, School of Nursing

This poster presents the Health Disparities and Black Birthing People Project, an interdisciplinary, community-led initiative in the VCU Health Humanities Lab. Developed with Birth in Color RVA and faculty from Sociology and Nursing, the project addresses the urgent public health crisis of severe maternal morbidity and mortality (SMM), particularly among Black birthing people. It centers the principles of reproductive justice, community-based participatory research (CBPR), and health humanities education to critically examine the systemic inequities shaping maternal health. While the project is ongoing, students and faculty have collected narrative interviews with new mothers and doulas (n=9) who are all participants of Birth in Color. Preliminary content analysis has surfaced key themes, including advocacy, communication, observation, safe spaces, optimized outcomes, and creativity. These insights are helping shape the development of strategies and tools to support more equitable and community-centered care. During 2024–25 academic year, undergraduate and graduate students participated in all stages of CBPR: designing interview protocols, navigating IRB processes, conducting interviews, and analyzing data using. They have also engaged in public and academic dissemination through research briefs, conference presentations, and a short documentary video. Mentorship, across multiple level from community experts to faculty and peer researcher ensured shared leadership and knowledge-building. By combining narrative, health equity scholarship, and community engagement, this project helped students develop the empathy, communication, and critical thinking skills necessary to transform maternal health systems. It also generates actionable, community-informed strategies that promote justice, dignity, and improved outcomes for marginalized birthing people.

5. Analysis of Current Literature on the Face-To-Face Still Face Method for Cultural Congruence

Merilyn Arikkat, BS, Dept. of Biology, College of Humanities and Sciences; Leslie Lantz, MSN, School of Nursing; Patricia Kinser, PhD, School of Nursing

Cultural understanding is a factor that impacts reliability of research results for observational studies. It is important to include participants of minority groups in research, as many people of color face disproportionate challenges in terms of healthcare access and resources. Within the context of mother-infant attachment, a technique known as the Face-to-Face Still Face procedure can be utilized to observe attachment styles and the bond between a parent and their infant. In order to combat subjectivity within the coding process for this Face-to-Face Still Face procedure, cultural congruence between the participants being observed in the study and the coding researchers qualifying behaviors should be considered. A literature search was conducted in which 12 articles, each utilizing coding to analyze mother-infant bonds, were reviewed to discover whether cultural congruence was reported or considered in the context of the coding process. None of the articles reviewed explicitly stated the cultural, racial, or ethnic backgrounds of the coding researchers. One article noted the nationalities of different members of the research team, with the nationalities of the research team and study participants matching. Another study noted that all the coding researchers were bilingual in the languages spoken by both groups of participants in the study. Details about the coding guidelines, educational background of the coding researchers, and the training process for coders was included in some articles. This review provides a starting point for further research into how a coding researcher's personal background can influence the coding process, and therefore the reliability of results.

6. Racial Identity, Parenting, and Parenting Stress in Black Mothers of Children with Attention-Deficit/Hyperactivity Disorder

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BACKGROUND: Despite an abundance of research on families of children with attention-deficit/hyperactivity disorder (ADHD), there is a dearth of research on Black families (Merrill et al., in press). In a deficit-focused field, there is a need to identify variables related to positive outcomes within the Black community. This pilot study aimed to examine how racial identity (RI) may relate to parenting stress and parenting in Black mothers of children with ADHD. **METHODS:** Participants were 41 Black mothers (Mage = 35.39, SDage = 6.49) of children with ADHD (43.9% female; Mage = 7.73, SDage = 1.38) living in the southeastern United States. Mothers and children attended a study visit to complete the Alabama Parenting Questionnaire (Frick, 1991), Parenting Stress Index-Short Form (Abidin, 1995), and Multidimensional Inventory of Black Identity (MIBI; Sellers et al., 1998). **RESULTS:** Pearson's correlations were used to investigate the relationships between RI, parenting, and parenting stress. A humanist RI was negatively associated with parental involvement ($r = -.330, p = .037$). Centering Blackness was negatively related to poor monitoring ($r = -.453, p = .004$). Finally, feeling positively toward Black people was negatively correlated with stress related to parent-child dysfunctional interactions ($r = -.341, p = .032$). **CONCLUSIONS:** Results suggest that a strong Black RI may relate to more desirable parenting outcomes in Black families of children with ADHD. Results also suggest that RIs, such as private regard, should be further investigated as a potential protective factor against some of the negative relational impairments associated with ADHD.

7. Maternal-Infant Attachment, Depression, Anxiety, and Breastfeeding Self-Efficacy among Marginalized Populations

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This study team is conducting an NIH-funded parent study, a longitudinal RCT to evaluate interventions in pregnancy for marginalized individuals experiencing depression symptomatology, with an exploratory aim evaluating postnatal maternal-infant outcomes. The purpose of this study is to explore relationships between perinatal depression and anxiety symptoms, and breastfeeding self-efficacy in marginalized individuals who are six months postpartum, as a sub-analysis from the larger parent study. Perinatal depression and anxiety symptomatology are prevalent (close to 20%) and costly to society. While much is known about possible maternal-infant sequelae, such as maternal-infant attachment and infant feeding, many studies have not included marginalized individuals with known symptomatology. In this sub-study with participants who have completed a six-month postpartum visit in the larger RCT, we collected questionnaire data about perceived symptoms (EPDS-US; PASS), self-efficacy for breastfeeding (BFSE), and maternal-infant attachment (MPAS). To evaluate relationships between these measures, we conducted analyses using Spearman's correlations due to the small sample size and lack of normality with the measures. None of the Spearman correlations between variables were statistically significant: EPDS-US with MPAS -0.1599 ($p = 0.6195$), PASS with MPAS -0.2735 ($p = 0.3695$), and BFSE with MPAS 0.4455 ($p = 0.3165$). Twenty-five percent scored 10 or greater on the EPDS-US (median 6 [2.75,11.5]), and ten participants (66.7%) were asymptomatic on the PASS. Although correlations were not detected, reassessment will occur as more complete the timepoint. Studies are warranted to explore symptomatology and understand the best methods for evaluating maternal-infant attachment.

8. The Protective Effect of Pregnancy on Risk for Suicide Attempt in a Swedish National Cohort

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Importance: The rate of suicidal behavior in pregnant individuals is low. However, the nature of the association between pregnancy and decreased suicide attempt risk remains unexplored. Objective: The goals of this study are to (i) evaluate the potentially causal association between pregnancy and suicide attempt, (ii) identify potential moderators of this association, and (iii) extend prior knowledge by investigating the association between pregnancy and suicide attempt in biological fathers. Design: We used national Swedish registry data and included cohorts born 1975-1995 and followed through December 31, 2018. Participants: Pregnant individuals aged 18-35, biological fathers, and matched controls were included in the study. Suicide attempt was assessed using International Classification of Diseases codes. Information related to pregnancy status and potential moderators was obtained from the registry data. Moderators included school grades, education, a familial genetic risk score for suicide attempt, externalizing and internalizing disorders, age at pregnancy, marital status, and suicide attempt in the father during pregnancy. Results: Data included between 366,125 and 2,129,244 females (depending on the model) and 359,622 males. Across all analyses, pregnancy was associated with a lower risk of suicide attempt (OR [95% CI] = 0.15 [0.13; 0.18] - 0.30 [0.23; 0.38])). Moderation analyses indicated that the potentially protective effect of pregnancy was stronger in unmarried individuals, those with prior registration for externalizing or internalizing disorders, and younger individuals. The likely protective effect of pregnancy was also observed during several postpartum periods (OR [95% CI] = 0.16 [0.14;0.19] - 0.31 [0.28;0.35]) and in biological fathers (OR [95% CI] = 0.67 [0.59; 0.74] - 0.82 [0.70; 0.96])). Conclusion and relevance: Risk for non-fatal suicide attempt was substantially lower during pregnancy in both females and males. Complementary analyses provide converging evidence that this association may be causal in nature. These results extend our understanding of the relationship between pregnancy and suicidal behavior and call for additional investigation of the protective mechanisms at play.

9. The Association Between the Transition to Parenthood and Risk for Non-Fatal Suicide Attempt in a Swedish Population-Based Sample

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We leveraged data from Swedish population-based registries to investigate the relationship between the transition to parenthood and risk for non-fatal suicide attempt (SA) in 1,049,142 female and 1,107,599 male individuals. We used Cox proportional hazards models to describe the relationship between the birth of (up to) four children and SA risk. Models were stratified by sex and controlled for birth year, parental education, externalizing and internalizing disorders, marital status, and family genetic risk scores for suicide attempt. We found that the first year following childbirth was associated with reduced SA risk in both mothers and fathers (hazard ratios [HRs] = 0.34-0.86). The magnitude of this association declined as a function of time since birth, and later time periods following the birth of one's third and fourth children were associated with elevated SA risk (HRs = 1.02-1.26). Further, age at first birth significantly moderated the association between the transition to parenthood and SA: Individuals who became parents at ages 15-19 years exhibited, with two exceptions, increased risk for SA across the transition to parenthood (HRs = 2.81-5.30). In contrast, individuals with an older age at first birth (30+ years) experienced, with one exception, a reduction in risk (HRs = 0.31-0.92). These findings underscore the complexity of the relationship between parenthood and SA, indicating that there are some subgroups for whom the transition to parenthood is associated with increased risk. Clinical outreach, especially to young parents, may be warranted as a preventative measure.

10. Understanding Prenatal Cannabis Use: Who Uses and Why

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Purpose: To examine the sociodemographic characteristics, motivations, and risk perceptions associated with cannabis use during pregnancy. **Methods:** Postpartum women (n=207) were recruited from a tertiary care Mother-Infant Unit. Participants completed an anonymous survey of demographics, prenatal cannabis use, and risk perceptions. Data were analyzed using parametric and nonparametric tests. **Results:** Participants were predominately white (52.7%) and Black (38.6%) with a mean age of 29.42 years. Of all participants, 17.9% used cannabis in pregnancy. Black women were significantly more likely to use cannabis compared to white women ($p=.007$). Women who used cannabis during pregnancy, were significantly younger ($p=.038$); single or never married ($p=.001$); women with greater than Grade 12/GED were significantly less likely to use prenatal cannabis ($p=.001$). The most common reasons for use was for fun/to relax (44.9%) and to relieve stress/anxiety (43.8%). Women who used prenatal cannabis were more likely to agree prenatal cannabis: helped with morning sickness/nausea (92% vs 68%, $p=.034$); safe to use during pregnancy (88.8% vs 21.4%, $p<.001$); and cannot affect a baby if it's in the breastmilk (90% vs 64%; $p<.001$). **Conclusions:** Cannabis use during pregnancy was significantly associated with younger age, single marital status, and lower educational attainment. Black women were more likely to report prenatal cannabis use than white women. Common motivations included recreation and stress relief, and users were more likely to believe cannabis was safe during pregnancy and breastfeeding. Findings highlight the need for targeted, evidence-based education about prenatal cannabis use that considers the beliefs and backgrounds of pregnant individuals.

11. Attachment & Maternal Well-Being in Depressed & Non-Depressed Cannabis-Using Postpartum Women

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The increasing prevalence of perinatal cannabis use raises significant public health concerns due to potential adverse effects on maternal and infant health. Maternal psychological distress during pregnancy and postpartum is a risk factor for negative health outcomes for both mother and child. Understanding the risks associated with cannabis use in depressed and non-depressed postpartum women is crucial for ensuring well-being. This study compared cannabis-using depressed and non-depressed postpartum women to identify factors associated with depression and cannabis use. Methods: This secondary analysis used data from an ongoing study of postpartum women (n=263) recruited from a mother-infant hospital unit. Participants anonymously completed a demographic form and provided information on substance use and mood (depression, stress, and anxiety). Data was analyzed using chi-square (χ^2) tests for categorical data and t-tests for continuous measures. Results: Thirty-two percent of cannabis-using women (N=47) scored above the cutoff for depression (≥ 10) on the Edinburgh Postnatal Depression Scale. Cannabis-using mothers with elevated depressive symptoms had significantly higher stress scores ($t(43) = 5.49, p < .001$) and anxiety scores ($t(44) = 5.79, p < .001$) compared to their non-depressed counterparts. Despite these differences in stress and anxiety, maternal postnatal attachment scores did not differ significantly between the groups ($t(44) = 0.13, p = 0.90$). Discussion: The significant association between elevated stress and anxiety in cannabis-using depressed postpartum women highlights the complexity of their mental health challenges. These findings emphasize the need to explore cannabis use as both a potential coping strategy and a contributing factor to psychological distress.

12. Project BETTER: Outcomes at the pregnancy-to-postpartum transition from a pilot clinical trial of a technology-delivered intervention for birthing people receiving medication for opioid use disorder

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Background: Birthing people receiving medication for opioid use disorder (MOUD) face unique challenges during pregnancy and postpartum. Obstetric providers are not prepared to address these stressors that contribute to risk of serious adverse outcomes including overdose. Objective: Describe preliminary harm-reduction focused outcomes specific to the postpartum transition from a pilot trial assessing BETTER's technology-delivered educational intervention for pregnant people receiving MOUD in a perinatal addiction clinic. Methods: Participants were randomized to the technology-delivered educational intervention or standard practice control (brochure). BETTER's intervention offered three modules [postpartum transition, Neonatal Opioid Withdrawal Syndrome (NOWS), child welfare] via Computerized Intervention Authoring System (CIAS 3.0). Inclusion criteria were: ≥ 18 years of age, < 34 weeks pregnant, current MOUD, and engaged in prenatal care for ≤ 10 weeks. Parenting Sense of Competence (PSOC; score range 16-96) scale and intervention-specific Perceived Competence Scales (PCS; score range 1-7) for three topic areas were administered at baseline, prenatal follow-up, and postpartum follow-up. Results: Participants ($n=29$) were reproductive age [$M = 30.0$ years ($SD = 4.4$)], 66% white and 31% Black with a median gestational age of 24 weeks. Over half (59%) had been receiving MOUD ≥ 1 year, mostly buprenorphine (69%). Two-thirds (66%) experienced a prior birth; approximately half of those had prior interactions with child welfare, and two had infants treated for NOWS. Mean PSOC were high across study condition and time. Conclusion: Patients in a multidisciplinary perinatal addiction clinic can achieve positive recovery outcomes including those specific to the unique biopsychosocial context during the transition from pregnancy to postpartum while in MOUD treatment.

13. Resource Utilization Among Racial Subgroups in an Integrated Obstetric/Addiction Clinic

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Objectives: Perinatal opioid use disorder (OUD) is a major public health concern. Integrated obstetric/addiction care models aim to improve outcomes for pregnant and postpartum individuals with OUD. However, racial disparities in pharmacologic treatment for OUD suggest potential inequities in service utilization. This study examines service utilization by race among pregnant individuals with OUD in an integrated obstetric/addiction clinic. **Methods:** This secondary analysis used data from a retrospective medical record review of pregnant patients with OUD receiving care at an urban outpatient integrated obstetric/addiction clinic. Participants included individuals who had a live birth between June 2019 and June 2021. Demographic, obstetric, and substance use disorder treatment data were collected from electronic health records. Chi-square tests compared service utilization between non-Latine White and non-Latine Black/African American patients. **Results:** The study included 41 participants: 28 White (68.3%) and 13 Black/African American (31.7%). No significant racial differences in service utilization were observed. Most participants (68.3%) attended four or more provider visits in the third trimester (White: 75.0%, Black: 53.8%). Third-trimester mental health counseling (MHC) was utilized by 65.9% of participants (White: 67.0%, Black: 61.5%). Utilization of pediatric neonatal opioid withdrawal syndrome education (17.1%) and intimate partner violence screening (7.3%) was low. **Conclusions:** Service utilization rates were similar across racial groups, suggesting equitable access within this integrated care model. However, the study's generalizability is limited by its sample composition. Future research should incorporate diverse racial/ethnic groups and qualitative measures to assess patient experiences and barriers to care.

14. Smoking Behaviors and Healthcare Utilization Among Pregnant Persons with Opioid Use Disorder

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Introduction: Tobacco and nicotine use during pregnancy can harm both the parent and infant, and individuals with opioid use disorder (OUD) often have higher rates of nicotine use compared to those without OUD. Despite available treatment options for smoking cessation in this population, their use remains limited. This study explores smoking behaviors and treatment utilization among pregnant individuals with OUD. **Methods:** This study analyzed data from a retrospective medical record review at an outpatient Obstetric/Addiction clinic. Participants were females, ages 18-45, receiving buprenorphine for OUD during pregnancy. Data collected included smoking status, smoking method, and use of smoking cessation treatments (nicotine patch, gum/lozenge, pharmacotherapy). **Results:** The sample (N=95) was primarily Non-Latinx White (62.1%), unemployed (56.8%), and had at least one psychiatric comorbidity (95.8%). Most participants were cigarette smokers (54.7%), followed by non-smokers (35.8%), e-cigarette users (9.5%), and dual smokers (1.1%). Smoking reduction treatments were underused: 23.1% of cigarette smokers and 22.2% of e-cigarette users used the nicotine patch, while only 17.3% of cigarette smokers and 11.1% of e-cigarette users used nicotine gum/lozenges. Pharmacotherapy for nicotine use disorder was used by only 25% of e-cigarette users, and none of the cigarette smokers. **Conclusions:** Despite high smoking prevalence in this population, smoking reduction treatment utilization was low, indicating a need for improved interventions. Future research should investigate whether smoking cessation during pregnancy impacts OUD treatment outcomes.

15. Characterization of neurofunctional and inflammatory markers in the context of early life stress among a clinical sample of people maintained on buprenorphine for opioid use disorder

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Early life stress (ELS) exposure is associated with an increase in both addictive drug-taking behaviors and the expression of inflammatory cytokines. Maintenance on medication for opioid use disorder (OUD), such as buprenorphine, can opposingly affect these behavioral and biological endpoints. The study aim was to determine whether ELS exposure is associated with a distinct neurofunctional and/or inflammatory phenotype within a population of individuals maintained on buprenorphine for OUD. This secondary analysis consisted of 21 adults (16M/5F) maintained on buprenorphine who completed assessments of six neurofunctional domains and provided blood samples which were used to assess levels of inflammatory markers. High and low ELS groups were determined by number of items endorsed on the Trauma History Questionnaire that occurred before 18 years old. Scores on neurofunctional assessments and levels of inflammatory markers were compared between ELS groups. There were no neurofunctional differences between individuals in the high ($n = 10$; 7M/3F; median traumatic events: 8.5 [range 4-13]) compared to the low ELS group ($n = 11$; 9M/2F; events: 3 [0-3]) across any of the six domains assessed. Proinflammatory cytokines $\text{IFN}\gamma$ ($p < 0.001$) and IL-6 ($p < 0.0001$) were elevated in the high ELS group compared to the low ELS group, whereas anti-inflammatory IL-13 was lower in the high ELS group ($p = 0.012$). Study results extend previous findings of an ELS-associated pro-inflammatory state within the general population to the OUD treatment population. Future work may examine sex differences in ELS-associated inflammatory markers.

16. Effect of chronic adolescent stress and morphine dependence on T cell profile in male and female rats

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Opioid use disorder (OUD) is an extremely prevalent and debilitating condition, characterized by relapsing cycles of uncontrolled use, craving, and withdrawal. Early life stress (ELS), physical or psychosocial stress exposure during infancy, childhood, or adolescence, is perhaps one of the most prevalent risk factors for OUD. A potential mediator for this increased risk may lie within the immune system, as ELS and opioid exposure have each been shown to induce immune dysregulation. Of particular interest in this dysregulation are regulatory T cells (Tregs), a key immunosuppressive T cell subtype. While Treg dysfunction has been observed in individuals with ELS histories and in those with OUD, additional work is needed to understand the effects of ELS on opioid-induced Treg dysfunction and OUD pathology. Further, the effect of sex on these processes is unknown. Therefore, we examined the effects of ELS and morphine dependence on Treg profile in males and females by exposing rats to chronic psychosocial stress during adolescence, followed by chronic morphine treatment in adulthood. Blood samples were collected and processed for flow cytometry at baseline, after stress exposure, after morphine treatment, and during withdrawal. We found that males, but not females, exposed to chronic adolescent stress exhibited a protracted and sustained decreases in Treg levels, demonstrating a stress-induced impairment in immunosuppression. Data analysis for effects of stress history on morphine-induced alterations in T cell profile are ongoing, and collectively, these findings will serve as the basis for future work evaluating immunotherapies in OUD treatment in individuals with ELS histories.

17. How Do Gender and Childhood Trauma Influence Opioid Misuse and Pain Outcomes Among Patients with Chronic Pain?

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PURPOSE: The purpose of this study was to examine potential gender disparities in relationships among Adverse Childhood Experiences (ACEs), pain, and prescription opioid misuse (POM) among patients with chronic pain (CP) on long-term opioid therapy (LTOT). **METHODS:** Participants (N = 152) included adult patients with CP on LTOT recruited from ResearchMatch.org who completed a self-report survey including: ACEs Questionnaire, Brief Pain Inventory (BPI), and Prescription Opioid Misuse Inventory (POMI). The majority of participants were women (82%) and white/Caucasian (59.2%). Participant responses were cross-sectionally analyzed using independent t-tests, one-way ANOVAs, and chi-square analysis. Missing data were treated with Expectation Maximization. **RESULTS:** Men had higher rates of POM than women ($p < .01$), and ACEs was significantly associated with POM for men only ($p < .05$), with men with no ACEs having higher POM ($M = 3.75$, $SD = 2.62$). There was also a significant difference in BPI pain interference scores based on ACEs ($p < .05$), with lower levels of interference in those with no ACEs. There were no gender differences in the relationships among ACEs and pain interference or pain severity. **CONCLUSIONS:** The study concluded higher ACEs scores correspond with greater pain interference in CP patients on LTOT. Additionally, men have higher opioid misuse rates than women, though unexpectedly lower among those with high ACEs. Our study's limitations must be considered when interpreting these findings and it should be replicated on a larger scale for more conclusive results.

18. Gender-Specific Associations Between Chronic Pain & Insomnia Symptoms among Adults in Opioid Use Disorder Treatment

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Chronic pain and insomnia frequently co-occur in individuals with opioid use disorder (OUD) stabilized on buprenorphine, yet gender-specific associations and specific insomnia symptomatology remain under-explored. This study conducted a secondary analysis of data from a parent study on insomnia in outpatient buprenorphine treatment, examining the relationship between chronic pain and specific insomnia symptomatology by gender. Insomnia symptoms were assessed using the Insomnia Severity Index (ISI). Women with chronic pain had significantly higher ISI scores than those without ($p = .018$), whereas men with and without chronic pain did not differ significantly ($p = .109$). Early awakenings were significantly more common in women with chronic pain ($p = .018$) but not in men ($p = .506$). Men with chronic pain reported greater interference with daily functioning due to sleep disturbances ($p = .014$), while women did not. Women with chronic pain also reported significantly less distress about their sleep compared to those without chronic pain ($p = .045$). These findings suggest gender differences in the relationship between chronic pain and insomnia among individuals receiving buprenorphine, with women experiencing greater insomnia severity and early awakenings, while men with chronic pain reported more functional impairment from sleep disturbances. Future researchers may further investigate these differences, explore longitudinal relationships between chronic pain and insomnia in this population, and consider inclusion of non-cisgender individuals to enhance understanding of gendered experiences in OUD treatment.

19. Menstruation-Related Issues and Insomnia Symptomatology Among Women in Opioid Use Disorder Treatment

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Poor sleep quality during treatment with medication for opioid use disorder (MOUD) may hinder treatment outcomes and the presence of menstruation-related issues may exacerbate sleep disturbances. This study aims to identify the prevalence of co-occurring menstruation issues and insomnia symptoms among women receiving MOUD. This is a secondary analysis from a cross-sectional survey study exploring the relationship between sleep and recovery among women receiving MOUD at an outpatient addiction clinic (N=100). Participants in this secondary analysis are between 18-51 years old, biologically female, stabilized on buprenorphine, and speak English. The primary outcome is insomnia symptomatology as defined by a total score on the Insomnia Severity Index. The independent variables include current experience of menstruation-related anxiety, depression, and mood changes, dysmenorrhea, and menorrhagia as reported by participants in the Obstetric/Gynecologic History section. 69 participants were included in the current secondary analysis. Of participants who reported menstrual issues (n = 44, 63.8%), 93.2% reported menstruation-related anxiety, depression, and mood changes, 61.4% reported dysmenorrhea, and 51.2% reported menorrhagia. Prevalence of clinically significant insomnia symptoms (ISI score ≥ 10) did not significantly differ between individuals experiencing (n=30, 68.2%) vs not experiencing menstrual issues (n=17, 68%). Although self-reported insomnia symptomatology did not differ based on experience of menstrual issues, prevalence was very high in both groups (>70%). Significant differences in insomnia symptomatology were not found between individuals experiencing vs. not experiencing menstrual issues despite the high prevalence of menstrual issues and insomnia symptoms among women receiving MOUD.

20. Addressing Opioid Mortality among Pregnant and Parenting Populations in Virginia: A Needs Assessment and Gap Analysis

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Background: Over 100,000 drug overdose deaths occurred nationally, profoundly impacting women and children. We received a grant from the Virginia Opioid Abatement Authority (OAA) to develop an online toolkit to help local officials implement evidence-based strategies to reduce opioid-related mortality, including strategies focused on maternal and child health. Objective: To conduct a needs assessment and gap analysis for one region (Henrico, Chesterfield, and Hanover Counties, and the City of Richmond) for substance use disorder (SUD) resources for pregnant and parenting women. Methods: Mixed-methods evaluation guided by a community stakeholder-engaged process, including: 1) in-depth interviews with community stakeholders, 2) community needs assessment survey, and 3) socioecological data analysis. We used 2016–2022 data from the Virginia All-Payer Claims Database, 2016–2023 Virginia Department of Health opioid mortality data, and 3) 2015–2022 American Community Survey data. Results: The claims-level analysis identified significant improvement in rates of counseling services, access to recovery housing, and prescriptions for medications for opioid use disorder among maternal populations. Community needs assessment survey participants (n=89) reported needs related to OUD treatment, including recovery residences/safe housing (91%), safe childcare (91%), and peer recovery services (85%). Stakeholders (n=35) provided key insights into ways in which OAA funds could be used to improve SUD treatment system for pregnant/parenting populations. Conclusions: Leveraging existing community resources through community-engaged approaches is essential for reducing opioid-related deaths among women and children. These findings provide valuable insights to inform strategies for addressing opioid mortality in Virginia and across the nation.

21. Alcohol use disorder and PTSD comorbidity: The impact on risk of suicide attempt

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Alcohol use disorder (AUD) and post-traumatic stress disorder (PTSD) are frequently comorbid and are individually associated with increased risk of suicide attempt (SA). However, multiple knowledge gaps remain, including: (i) whether their comorbidity exacerbates SA risk; (ii) whether the temporal ordering of conditions is differentially related to risk; and (iii) whether the magnitude of risk differs across sexes. In the current study, we leveraged Swedish national registry data on a large birth cohort (N=799,203-858,983) to address these issues. PTSD and AUD status was identified using ICD-10 codes. In the context of Aalen additive Cox models, we estimated the number of additional SA cases per 10,000 person-years attributable to PTSD, AUD, and their interaction, adjusting for key covariates, and stratifying by sex. Results demonstrated that the effects of AUD (37.63-80.04 additional SA cases) were consistently stronger than those of PTSD (12.19-22.51 additional SA cases), and this difference was more pronounced when AUD preceded PTSD. We observed significant deviations from additivity in the interaction between PTSD and AUD, such that the number of additional SA cases per 10,000 person-years was higher among comorbid individuals than would be expected based on the main effects of each exposure (71.13-185.10 additional SA cases). While SA risks were largely comparable across the sexes, females whose PTSD preceded an AUD registration had the highest overall risk. PTSD-AUD comorbidity substantially exacerbates SA risk, and females who first experience PTSD are an especially high-risk group, warranting additional screening.

22. Sex Differences in a Young Adult Sample with Severe AUD and Antisocial Behavior

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Over half of all lifetime alcohol use disorder (AUD) cases begin by or before age 23. Research demonstrates that increased alcohol consumption is associated with higher levels of antisocial behaviors (ASB), with males with AUD reporting more ASBs than women with AUD. When developing AUD treatments, it is imperative to understand factors that may relate to alcohol consumption such as sex and ASB. This study compares ASBs of men and women with severe AUD. This secondary analysis from the Genes, Addiction, and Personality (GAP) study of severe AUD, recruited adults online. Participants completed an anonymous web-based survey that included sociodemographic factors and a 17-item ASB scale. ASB responses ranged from 0=never to 3=more than 5 times. Current analyses included young adults aged 18-25. Chi-square and t-tests were used to compare self-reported ASB items and overall score, respectively, between men and women. Men and women endorsed similar overall ASB scale scores (men mean=9.06 and women mean=7.90, $p=.173$). However, men were more likely than women to report the following ASBs: conning ($p=.015$), bad parenting ($p=.013$), being fired ($p=.032$), getting arrested ($p=.003$), committing a crime ($p=.006$), getting in an accident ($p=.002$), and getting into fights ($p<.001$). Findings indicate that men disclose more ASBs than women with AUD. This may suggest that sex differences persist among young adults with severe AUD. Future research should continue to investigate sex differences and other factors relating to alcohol consumption when developing individualized treatments.

23. A Cross-Species Fecal Microbiota Transplant Reduces Ethanol Consumption in Female Mice

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There is a need for new approaches to treating alcohol use disorder (AUD) beyond the currently available therapies. One approach is manipulation of the gut microbiome. Alcohol consumption changes the microbiome by changing bacterial diversity, and it has additional effects on the gut, including changes in mucosal immunity and intestinal permeability. Previous studies have shown that manipulation of the microbiome with a fecal microbiota transplant (FMT) can ameliorate AUD-related behaviors, including alcohol consumption, as well as potentially prevent further liver damage in patients with AUD and alcoholic liver disease (ALD); however, most of these studies have been performed in male cohorts. Studying the responses of females to a FMT is important, as there are known sex differences in the gut microbiome, ethanol consumption, and inflammatory responses. Thus, the goal of this study is to use stools from healthy human donors in a mouse model of alcohol consumption to determine what characteristics, (i.e. bacterial diversity, engraftment efficacy) in donor stools translate to the greatest reduction in alcohol consumption. Female mice were treated with a course of antibiotics prior to FMT administration to encourage engraftment. Three donor stools were used, each with different amounts of beneficial gut bacteria. Following engraftment, mice underwent five weeks of drinking, as well as behavioral testing to measure locomotive and anxiety-like behaviors. We report changes in alcohol consumption over the course of human FMT engraftment. This model provides a basis for further studies on modulating the gut-brain axis via FMT in a model of chronic ethanol consumption.

24. Pharmacologic and non-pharmacologic treatment for alcohol use disorder in pregnancy and postpartum: An analysis of unmet needs using multi-state administrative claims data

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AIMS: Alcohol use disorder (AUD), the most common substance use disorder among reproductive-age people, is associated with increased odds of severe maternal morbidity. AUD treatments are effective, yet the degree of medication for AUD (MAUD) and psychosocial treatment utilization during the perinatal period is unknown. We report on the discontinuation of AUD treatments during pregnancy through postpartum among a multi-state AUD sample, comparing pregnant and non-pregnant people. **METHODS:** We used the Merative MarketScan databases (2015-2019) to conduct a retrospective cohort study of pregnant individuals with AUD and non-pregnant AUD peers matched by age, insurance, and calendar time. All individuals had at least one treatment claim with an AUD diagnosis in the year preceding the study timeframe. The outcomes, filled MAUD prescriptions (naltrexone, acamprosate, disulfiram), and receipt of psychosocial treatment (with AUD diagnosis), were identified via claims. Treatment receipt was stratified by five 12-week observation windows for pregnant individuals (12 weeks preceding preconception; first trimester; second trimester; third trimester; 12 weeks postpartum) and non-pregnant peers (by corresponding observation windows). We assessed time (days) to discontinuation of MAUD and psychosocial treatments using multivariable cox regression models, both unadjusted and adjusted by sociodemographic variables and comorbidities. **RESULTS:** Our sample consisted of 2,080 pregnant persons with AUD and 7,564 matched non-pregnant AUD peers. In the preconception time observation window, 12.1% of pregnant and 13.5% of non-pregnant people were receiving MAUD, and 36.6% and 39.2% psychosocial treatment. Treatment receipt decreased through postpartum, with 1.9% of pregnant and 7.8% of non-pregnant people receiving MAUD, and 10.3% and 13.8% psychosocial treatment. Unadjusted (HR=2.21[1.80-2.71]) and adjusted (HR=2.11[1.71-2.60]) models illustrated significantly shorter time to discontinuation of MAUD in the pregnant compared to non-pregnant cohort. We observed no difference in psychosocial treatment discontinuation rates between cohorts. **CONCLUSIONS:** Discontinuation of AUD treatment is widespread among pregnant people with AUD, persisting through the postpartum period.

25. Personality Comparison by Drug Use Disorder and Sex in a Sample of Individuals with Comorbid Drug and Alcohol Use Disorder

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Aim: While substance use disorder (SUD) is common among both men and women with severe alcohol use disorder (AUD), sex-based differences play a critical role in the disease course and treatment needs of such individuals. Primary substance of use and personality also impact treatment outcomes. This study will examine personality differences among men and women with comorbid SUD and AUD by self-reported most problematic drug. **Methods:** This is a secondary analysis of data from the Genes Addiction and Personality study exploring genetic and environmental influences on severe AUD. Participants were adults, recruited online, who had a history of severe AUD. Participants completed a web-based survey that included sociodemographic factors, and Neuroticism, Extroversion, Conscientiousness, and Agreeableness subscale items from the Big Five Inventory Short Form. Use of marijuana, cocaine, stimulants, sedatives, and opioids was assessed. Two-way 2x5 between subjects' ANOVAs were performed to compare personality differences in men and women by primary drug disorder. **Results:** Participants (N = 1,470) were mostly female (70.8%) and white (87.9%). There were small but significant main effects of sex on agreeableness ($p=.04$) and neuroticism ($p<.001$). There were small but significant differences between primary substance use groups on measures of agreeableness ($p=.01$) and extroversion ($p=.03$). There were no interaction effects between gender and primary drug. **Conclusion:** Results from this study provide information about individuals with comorbid SUD and severe AUD, a vulnerable population with unique treatment needs. Findings also add important information about the relationship between sex, personality, and substance use to the nascent field of precision medicine.

26. Microbiome Modulation of the Host Vaginal Transcriptome in Pregnancy

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Background: The vaginal microbiome (VMB) plays a crucial role in both health and disease. A dysbiotic VMB, characterized by depletion of *Lactobacillus* species, is linked to numerous adverse health outcomes including preterm birth (PTB) and bacterial vaginosis (BV). By analyzing species-specific microbial modulation of the local transcriptome, we aim to deconvolute microbial drivers of vaginal inflammation in both women who delivered preterm and at term. **Methods:** Bulk RNAseq transcriptomics was performed on 297 vaginal swabs from multi-racial cohort of pregnant women from the Multi-Omic Microbiome Study-Pregnancy Initiative (MOMS-PI). Differential expression analysis using DESeq2 incorporated maternal covariates including gestational age at sampling, maternal age, race, delivery status (term/PTB), and vaginal microbiome composition. **Results:** Women with non-*Lactobacillus crispatus* dominant vaginal microbiomes have significantly upregulated genes associated with inflammatory and immune response pathways, particularly IL-1b and CXCL8. *Prevotella* cluster 2, several related taxa including *Prevotella timonensis* and *Prevotella buccalis*, previously shown to be associated with preterm birth¹ in this cohort, and “no type” vagotypes, samples without a species comprising > 30% of the relative abundance, resulted in the highest log fold change in inflammatory genes compare to other taxa. **Conclusions:** Independent of delivery outcome, non-lactobacillus dominant vaginal microbiomes are associated with significantly upregulated local inflammation and immune response pathways within the local vaginal environment. Identifying species-specific influences on the maternal vaginal transcriptome will enhance predictive models of PTB and improve our understanding of host-microbiome interactions in pregnancy.

27. Generating a TCS Knockout Mutant in *Sneathia* using Homologous Recombination

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Background: *Sneathia vaginalis* is a Gram-negative anaerobic bacterial species in the vaginal microbiome that can cause amnionitis, preterm birth, and other pregnancy complications. Limited understanding of *S. vaginalis* hinders the development of preventative strategies. Two component systems (TCS) are common in pathogenic bacteria, regulating virulence factors in response to environmental cues. A TCS consists of a histidine kinase on the bacterial surface and a response regulator that functions as a transcription factor. This study aimed to generate a TCS knockout mutant in *Sneathia* using homologous recombination with an erythromycin (*erm*) resistance cassette to investigate the TCS's role in *Sneathia*'s physiology. Method: We constructed a plasmid with two regions of homology to the TCS genes in *S. vaginalis*, interrupted by an *erm* cassette that confers resistance to macrolides and lincosamides. After electroporating the plasmid into *Sneathia* to replace the TCS locus with the *erm* cassette, we selected mutants on clindamycin plates to promote double-crossover homologous recombination. Results: Two colonies grew on clindamycin. We confirmed the presence of the *erm* cassette through PCR amplification, indicating successful double-crossover recombination. However, both colonies also contained wild-type DNA, suggesting incomplete recombination. We then performed sequential rounds of purification on clindamycin plates to isolate mutant populations. Conclusion and future directions: Generating a TCS mutant in *S. vaginalis* will enable the characterization of the TCS regulon and identify critical genes for pathogenesis. Future studies will assess the mutation's effect on growth and gene expression in simulated vaginal fluid and in amniotic fluid using RNA sequencing.

28. Combinatorial Therapy of Methotrexate and an IKK Inhibitor for Post-Surgical Treatment of Deep Infiltrating Endometriosis

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Gynecological conditions are diseases that affect the reproductive tract of women, with an estimated 97 per 1,000 women in the United States diagnosed annually. Despite their prevalence, many of these conditions remain poorly understood, leading to inadequate diagnostic tools and treatments. Among them, endometriosis is a chronic disease characterized by the presence of ectopic endometrial-like tissue, causing severe pelvic pain, infertility, and organ dysfunction. Deep Infiltrating Endometriosis (DIE), the most aggressive form, invades pelvic structures and often necessitates surgical intervention. However, recurrence remains a major challenge due to residual microscopic lesions and persistent inflammation, highlighting the need for targeted post-surgical therapies. In this study, we investigate the therapeutic potential of SPC-839 and methotrexate for DIE post-surgery treatment. We first evaluated the efficacy of these drugs individually and in combination by assessing cell proliferation inhibition using the MTS assay across various drug ratios. Our hypothesis is that the combination of SPC-839 and methotrexate will enhance therapeutic efficacy by disrupting the inflammatory-proliferative cycle that drives DIE recurrence. The most effective drug combination, determined by IC_{50} values, will serve as the basis for future nanoparticle encapsulation using a PLGA-based system functionalized with the heptapeptide ATWLPPR. Following encapsulation, we will analyze its efficacy in downregulating NF- κ B signaling and mitigating lesion persistence.

29. Evaluation Of The Role Of Sphingosine-1-Phosphate Receptor-1 In Aromatase Inhibitor Induced Painful-Like Behavior In Mice

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Breast cancer is the second leading cause of cancer deaths among women in the U.S., with 310,720 new cases annually. The majority of cases involve postmenopausal women with estrogen receptor-positive (ER+) tumors, treated with letrozole, an aromatase inhibitor (AI). While letrozole prevents cancer cell proliferation, many patients experience musculoskeletal painful symptoms known as aromatase inhibitor musculoskeletal syndrome (AIMSS), leading up to 50% of women to discontinue treatment early. This study aims to investigate the role of Sphingosine-1-Phosphate Receptors (S1PRs) in AIMSS using a translational mouse model. Since global S1PR1 null mice are not viable, we used conditional gene knockout (cKO) to examine a possible CNS S1PR1 contribution to letrozole-induced AIMSS. We administered chronic oral letrozole for 15 days to ovariectomized (OVX) female cKO (C57BL/6J background) mice where S1PR1 was eliminated from neurons, astrocytes and oligodendrocytes (S1pr1 loxP/loxP; Nestin-Cre) and unrecombined littermate controls (S1pr1 loxP/loxP) and assessed various behavioral changes (mechanical hypersensitivity, decrease in grip strength, nesting and wheel running). We also tested two S1PR1-targeting drugs: the functional antagonist FTY720 (fingolimod) and the competitive antagonist NIBR-0213. Letrozole-induced AIMSS was largely absent in cKO mice lacking S1PR1 in CNS cell lineages. In addition, acute administration of FTY720 and NIBR-0213 reversed AIMSS-like behaviors in a dose-related manner. These results suggest that S1PR1 activation plays an important role in letrozole- induced behavioral deficits and are promising target for treating AIMSS in breast cancer patients receiving AIs.

30. Hey Chat– What Should I do? Analysis of LLM Responses to Angiographic Emergencies

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Background: Large language models (LLMs) such as ChatGPT (Open AI, San Francisco, CA) is a type of artificial intelligence programing that has shown promising applications in medicine. We set out to examine ChatGPT's utility in identifying and suggesting management for hypothetical angiographic emergency scenarios. Methods: A Delphi technique was utilized to create a set of 15 fictional angiographic emergencies (FAE) encountered by vascular surgeons. A ChatGPT 4.0 prompt was used to describe the problem and the best next step. A five attending vascular surgeon panel evaluated each response in three domains (scale ranging from -3 to +3): quality of content, relation to consensus of the scientific community and likelihood of causing significant harm. Results: The average score of all scenarios was 1.08 ± 1.4 . The panel found that 18.7% of ChatGPT responses opposed with the scientific consensus, 12.0% had a high risk of harm, and 25.3% included incorrect or inappropriate content. 53.3% of ChatGPT responses had no problem with content. Two scenarios were scored perfectly by all evaluators. Conclusions: While Chat GPT 4.0 may have some utility in identifying and managing angiographic emergencies, its clinical use is limited by knowledge deficits. The majority of ChatGPT provided content was aligned with the consensus of the scientific and clinical community, but nearly 25% included some incorrect or inappropriate content. While this study specified patient sex in the provided prompt, future studies may pay special attention to sex-based differences in presentations of vascular disease while assessing ChatGPT's understanding of angiographic emergencies.

31. COMPARISON OF INTERSTITIAL CYSTITIS TREATMENT PATHWAYS ONE YEAR AFTER DIAGNOSIS

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Introduction: Established treatment guidelines for interstitial cystitis (IC) are multi-modal. However, literature describing the frequency with which different treatments are utilized is limited. This study's objective was to explore IC treatment pathways using a large multisite cohort analysis. Methods: Retrospective analysis utilized the TriNetX database. Cohort selection included females (>17 years) with a diagnosis of IC by ICD10/CPT codes. The time period analyzed was from the index event, IC diagnosis, through one year. Collected characteristics included treatment type, timing, and pathway changes. Comparisons for the number of patients who were initiated on specific single or combined treatments, the number of patients who switched treatments, and the time elapsed before switching to a different treatment pathway. Results: A total of 83,743 patients met inclusion criteria. The cohort majority was white (76.5%), followed by unknown race (11.1%) and black (6.2%). 26,782 patients had identifiable treatment pathways utilizing cystoscopy with bladder hydrodistension, intravesical instillations, oral medications, or some combination thereof. Two-thirds of patients were initiated on oral medication as first-line treatment at mean of 48 days after the index event. Only 8% of this group switched to a different treatment. The number of patients switched to different treatment pathways within the first year ranged from 13-27%. Conclusions: Patients who began treatment with oral medication had notably lower rates of switching treatments. This treatment approach aligns with the AUA guidelines favoring conservative management. This data is limited by other indications for medication usage and the ability to qualify why patients switched treatment lines.

32. The Role of Effective Mentorship: Equipose of Female Representation in Research Presentations at a State Vascular Surgery Society

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Introduction: Studies suggest that vascular disease continues to remain underdiagnosed in women. Gender differences in presentation and pathophysiology of vascular disease may be better managed with more female perspectives in the research and treatment of this population. We set forth to explore trends of female engagement in vascular surgery research based on Virginia Vascular Society (VVS) participation. **Methods:** he published programs from the VVS annual meetings from 2012 to 2019 were analyzed for presenter sex, topic, total authors, additional female authors, and manuscript publication. Each presentation was categorized by topic. The abstracts were evaluated for journal publication and associated impact factor. Fisher's exact†, student's t-test*, and linear regression was used for analysis. **Results:** 171 presentations were undertaken from 2012 to 2019. Women were more likely than men to present on the topic of amputation ($p = 0.003†$). There was no difference in presenter gender for the remaining topics. Women were just as likely to get their manuscript published as their male counterparts ($p=0.28†$) and there was no difference in the impact factor of the associated journal ($p = 0.06*$). The number of female presenters at VVS increased overtime ($P = 0.02$; t-statistic = 2.39). **Conclusions:** Through analyzing eight years of VVS data, we found an increasing number of female presenters with no difference in most topics of research or manuscript publication between genders. This data could indicate strong mentorship provided by members of the VVS, counteracting gender biases that have been found in other national studies of a similar manner.

33. Contrasting Women's Experience Journeys with Complementary and Alternative Medicine vs Conventional Medicine Providers

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Objective. To examine and contrast how women experience the delivery of care by complementary and alternative medicine (CAM) and conventional primary care providers (PCPs); and to understand how these experiences impact women's perceptions, satisfaction, and behavioral outcomes. **Data Sources and Study Setting.** Over a three months period in 2023, primary qualitative in-depth interview data were collected from adult women users of CAM and conventional providers (N = 40), across the United States. We conducted the interviews remotely over Zoom. **Study Design.** Semi-structured in-depth interviews focused on revealing women's service experience journeys with CAM versus conventional providers across all the touchpoints with these providers from pre-initial appointment to current care service encounters and relationships. **Data Collection/Extraction Methods.** Participants were recruited and scheduled for interviews through a national research company. Recruited women had to be between the ages of 18 and 49 and have a CAM provider as one of their main primary healthcare providers. Purposeful sampling was used to recruit a diverse sample in terms of race. Interviews were audio recorded, transcribed, and analyzed to generate themes using a systematic and iterative constant comparison process based on the Straussian school of qualitative methodology. **Principal Findings.** Results reveal significant differences in women's journeys, with conventional providers falling short in meeting their health service expectations at every touchpoint of their journey, especially in comparison with CAM providers. These differences impact not only women's attitudes towards and use intentions of conventional and CAM providers, but also their health behaviors, health spending, and consequent well-being perceptions.

34. Narrative Exposure Group Therapy for Post-traumatic Stress Symptoms Among Internally Displaced Women in Ethiopia: a single-armed pre-post design

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The number of internally displaced children and women in Ethiopia has increased over the past five years following the ethnic conflict intensified by the North Ethiopian War, peaking in 2021. Women and girls experience various traumatic conditions before, during, and after internal displacement. Recent scholarly attention has focused on the traumatic experiences of internally displaced women and girls; however, substantial knowledge gaps remain concerning the accessibility, relevance, and availability of mental health interventions for them. Narrative Exposure therapy (NET), a group-based treatment comprising six group sessions, is an evidence-based treatment to address trauma in refugee or community settings. While NET has been adopted and utilized in different African countries, it has not been evaluated and used in Ethiopian women who develop PTSD after internal displacement. This study primarily used a single-armed pre-post design, followed by a thematic qualitative approach, to examine the pre-and post-intervention changes in a sample of nine internally displaced women with PTSD who attended six sessions of two hours of group therapy guided by the NET manual. Three trained psychologists facilitated the group in an in-person format. The results indicated that the group intervention was successful in reducing post-traumatic stress symptoms, as well as decreasing symptoms related to cognitive difficulty, emotional challenges, physiological and behavioral reactions, and social-relational challenges in participants. The study concludes that NET demonstrates potential as a group intervention for internally displaced women in Ethiopia experiencing post-traumatic stress and offers insights to practitioners in resource-limited settings.

35. Food and Other Insecurities as Associated with Domestic and Intimate Partner Violence

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Background: Food Insecurity is increasingly shown to be linked to intimate partner violence (IPV). A few studies have found that food security is linked to well-being in the response to and care of survivors.[1, 2] A study focused on IPV and food insecurity during the COVID-19 pandemic showed increased rates of housing and healthcare insecurity.[3] A national study found race and gender differences with women and racial minorities more at risk for a mix of insecurities as a part of IPV.[4] One study found that food can be a trigger associated with anger and became a reason to control and then abuse the victim. [6] However, studies are limited in understanding insecurities, particularly food, as a part of the violence cycle and whether these insecurities or food insecurity specifically results in higher rates of returning to the abuser due to lack of other options, or whether these insecurities result in reduced mental health that can also be a factor in being unable to leave violence relationships. Hospital-based violence intervention programs (HVIPs) can be on the front line of identifying food and other insecurities as necessary to the screening of victims. HVIPs are designed to improve the training of healthcare professionals in earlier identification of IPV as they are uniquely positioned to intersect with victims in settings that can allow for screening and intervention. Healthcare professionals can identify injuries and actions that may lead to increased violent incidents. VCU HealthSystem has a HVIP specializing in IPV – Project Empower. We examined the percentage of IPV victims admitted into Project Empower who experienced food and other insecurities, and needed financial support. Methods: Evaluation was done by descriptive observational methodology. Data was collected from the Project Empower RedCap database. Patients enrolled in Project Empower are entered into a secure database capturing demographics, victimization, and insecurities such as food, income, housing, transportation, and other needs. Case logs were evaluated detailing identification of needs for survivors of IPV (ages 18+) to examine rates of housing loss, financial and food support requests, and possible relation to food insecurity identified. Results: Between 2020 and 2024 we served 1,427 survivors of violence. Financial support consisted of: petty cash, food/clothing, vouchers for medication, transportation, and hotels that included meals. Of the 1427 participants enrolled, 1338 (93.76%) needed financial assistance of some kind related to housing, food, medication, clothing, and/or transportation. Conclusions: Improved training of healthcare providers with evidenced-based and trauma-informed screening can be a factor in early intervention of IPV victims and assessing food insecurity as well. While our data is not yet identifying insecurities separately, we can see that insecurities are linked, such as lack of housing is often then associated with a lack of food access. Victims may be forced to choose between food or medication, or not having transportation to access food. These things combined make choices to access specific needs a factor in being able to leave abusive relationships and may force survivors into staying longer. Further studies are needed to fully understand the impact of insecurities, like food insecurity, on IPV victims struggling with leaving abusive relationships and whether food insecurity or other insecurities are a factor in leaving, especially if shelters are not accessible.

36. A Produce Prescription Program integrating lifestyle behavior counseling and health education: gender-based differences in health behaviors and social drivers of health

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Background: Diet-related chronic diseases and social drivers of health disproportionately affect women at a higher rate than men. Lifestyle interventions, such as Prescription Produce Programs (PPPs), can help promote health equity by offering a tailored approach to supporting the prevention and management of diet-related chronic conditions while addressing food insecurity and promoting healthier diets. Aim: This study examined gender-based differences in outcomes within a community-based program. Methods: Older adult participants recruited from the Mobile Health and Wellness Program (MWHP) received 6 produce bags along with lifestyle interventions. Pre- and post-surveys were completed with self-reported social conditions and dietary behaviors. Descriptive nonparametric analyses were conducted. Results: Of the 81 adults enrolled, 71 completed the PPP (68% female, M age = 68 years). Nutrition insecurity status among female participants at baseline was 29.2% compared to 16.7% post-intervention, which represented a 12.5% statistically significant decrease ($p = .01$). Male participants reported a non-significant decline in nutrition insecurity, from 36.8% at baseline to 26.3% post-intervention. A Wilcoxon signed-rank test indicated that both female and male participant's confidence in their ability to manage their chronic conditions was significantly higher after participating in the PPP than before ($p < .001$). Conclusions: These findings support the integration of lifestyle counseling within PPPs to enhance nutrition security and improved confidence in the management of chronic diseases.

37. Impact of Food Accessibility in the Greater Richmond Area on Fetal Growth and Maternal Health during the Gestational Period

Drosoula Kountouris, BS, School of Medicine; Ellie McCabe, BS, School of Medicine; Laura Clark, BS, School of Medicine; Paula Petersen, BS, School of Medicine; Roshni Patel, BS, School of Medicine; Katherine Czyszczon, MD, Dept. of Obstetrics and Gynecology, School of Medicine

This study explores adverse pregnancy outcomes related to food accessibility, as defined by the USDA Food Access Research Atlas (FARA). Limited food access has been associated with higher rates of gestational diabetes mellitus (GDM), preterm delivery, and pregnancy-induced hypertension. This study aims to identify further trends among pregnant patients with restricted food access who received care at an urban, safety-net hospital. A cohort was established using Epic electronic health records, including patients who delivered at VCU Health in 2022 or 2023 and resided in Greater Richmond, VA. Addresses were classified based on food accessibility using FARA. Exclusion criteria included multifetal gestations, history of abdominal surgery, and pre-existing conditions like diabetes, hypertension, autoimmune disease, and kidney disease. Data were collected on the occurrence of intrauterine growth restriction (IUGR), GDM, gestational hypertension (GHTN), and pre-eclampsia (PreE). Among 658 charts reviewed, 309 patients had limited food access (LFA) and 349 were deemed food accessible (FA). IUGR was significantly higher in LFA patients (10.7% vs. 5.16%, $p=0.009$, OR=2.20, CI 1.24-4.09). However, GHTN ($p=0.740$), GDM ($p=0.592$), and PreE ($p=0.723$) differences were not statistically significant – although both GHTN and GDM trended higher amongst LFA patients. This pilot study suggests that food insecurity is linked to adverse pregnancy outcomes, particularly IUGR. While a larger sample is needed to better evaluate the non-significant trends, these results indicate the importance of continuous food security screening in prenatal care and connecting at-risk patients to resources.

38. Labor Outcomes of Patients Living in Limited Food Access Census Tracts in the Greater Richmond Area

Roshni Patel, BS, School of Medicine; Laura Clark, BS, School of Medicine; Paula Petersen, BS, School of Medicine; Drosoula Kountouris, BS, School of Medicine; Ellie McCabe, BS, School of Medicine; Katherine Czyszczon, MD, Dept. of Obstetrics and Gynecology, School of Medicine

This study explores adverse pregnancy outcomes related to food accessibility, as defined by the USDA Food Access Research Atlas (FARA). Limited food access is linked to higher rates of gestational diabetes, preterm delivery (PTD), and pregnancy-induced hypertension. This study aims to identify further trends among pregnant patients with restricted food access who received care at an urban, safety-net hospital. A cohort was developed using Epic electronic health records, including patients who delivered at VCU Health in 2022 or 2023 and resided in Greater Richmond, VA. Addresses were classified based on food accessibility using FARA. Exclusion criteria included multifetal gestations, history of abdominal surgery, and pre-existing conditions like diabetes, hypertension, autoimmune disease, and kidney disease. Data were collected on PTD, postpartum hemorrhage (PPH), and premature rupture of membranes (PROM). Among 658 charts reviewed, 309 patients had limited food access (LFA) and 349 were food-accessible (FA). PTD ($p=0.449$), PROM ($p=0.148$), and PPH ($p=0.239$) trended higher in the overall LFA group but were not statistically significant. However, within Richmond Independent City, PPH was significantly higher in the LFA group ($p=0.025$, OR=3.09, CI 1.24-7.92) – occurring nearly three-fold more often. This pilot study suggests that pregnant people with limited food access may face a higher risk of poor labor outcomes, with particular concern for PPH among Richmond City residents. Further research to better understand these trends could help inform targeted local interventions aimed at reducing risks for pregnant patients.

39. Efficacy of a 12-week nutrition intervention to increase general health knowledge and diet-related outcomes amongst men and women living with HIV

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People living with HIV (PLWH) often experience poor nutrition-related health outcomes due to both disease-associated factors as well as other biopsychosocial barriers. Community-based interventions may provide a more accessible educational process than treatment in the outpatient setting alone and thus may help better nutritional outcomes. The aim of this study was to assess the effectiveness of a 12-week community-based intervention that provided a combination of classroom educational sessions and hands-on learning experiences designed for PLWH. Enrolled participants were HIV seropositive, were enrolled in VCU's Ryan White Programming, had an undetectable viral load, and were actively being treated in an outpatient setting with a dietitian (n=46). Data was collected via a pre- and post-class survey that consisted of questions derived from the RAND 36-Item Health Survey and the National Cancer Institute Eating Habits Questionnaire, tailored to our specific class goals. Surveys also included free-response sections to qualitatively assess health perceptions and habits and to collect general feedback for the community-based class structure. Results indicated that health behaviors improved in both sexes, as did overall confidence in preparing new recipes ($p<0.0001$) after the 12-week class. Furthermore, there was a significant decrease in BMI for female participants ($p=0.0016$). 100% of participants reported that the class was beneficial, and participants overwhelmingly requested an extended course for class graduates to continue to learn strategies to better their nutritional health. Overall, this work demonstrates through participant-reported insight that a 12-week community-based nutritional intervention can improve health related attitudes, behaviors, and outcomes in PLWH.

40. Real-world assessment of female adolescent eating patterns: Preliminary findings from the REAL study

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Introduction: Adolescent females are at high risk for dysregulated eating patterns, yet in-the-moment drivers of these patterns are not well understood. The Real-World Adolescent Eating Patterns (REAL) study uses ecological momentary assessment (EMA) to deeply phenotype adolescent mealtimes to inform timely intervention efforts. We present feasibility results from Phase 1 of REAL. Methods: Four female adolescents (Mage = 15yrs; 75% African American/Black) completed online surveys (demographics and meal patterns), a 7-day EMA protocol via a mobile app to assess daily eating patterns, and an exit interview. After completing study procedures, adolescents were invited to join the study's adolescent advisory board. Descriptive statistics examined feasibility and mealtime characteristics. Results: Participants completed 100% of study activities. Average EMA compliance was 93% (range 71-100%), exceeding EMA compliance recommendations for adolescents (78%). Participants consumed an average of 2.4 meals and 2.9 snacks per day. On average, participants skipped a total of 4 meals during the 1-week period, with breakfast being the most frequently skipped meal. An average of 63% of meals were prepared at home (33% at restaurants/convenience stores). Screens were used during 43% of mealtimes. All adolescents joined the advisory board. Conclusion: High compliance rates demonstrate feasibility of EMA to assess daily adolescent mealtimes. Frequency of potentially problematic eating patterns, such as meal skipping and screen use, were identified. Results informed Phase 2 of the REAL study, a 14-day EMA protocol that will examine gender and weight differences in adolescent meal patterns.

41. Naturalistic Symptom Trajectories of Atypical Anorexia Nervosa, Anorexia Nervosa, and Bulimia Nervosa in a Prospective Cohort Study of United States College Students

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Objectives: Little is known about the natural course of atypical anorexia nervosa (atypAN) relative to AN and bulimia nervosa (BN). This study characterized trajectories of eating and internalizing (anxiety, depression) symptoms in a large college sample with and without a history of atypAN, AN, and BN and compared sex and race/ethnicity distributions across groups. **Method:** U.S. college students participating in Spit for Science™, a prospective cohort study, were classified as having a history of atypAN (n=125), AN (n=160), BN (n=617), or as non-eating-disorder controls (NCs, n=5,876). Generalized and linear mixed-effects models assessed group differences in eating and internalizing symptom trajectories, and logistic regression compared groups on sex and race/ethnicity distributions. **Results:** The atypAN group demonstrated elevated eating disorder and internalizing symptoms versus NCs but less severe symptoms than the AN and BN groups. All eating disorder groups showed improvement in fasting and driven exercise, but purging and depression remained elevated. The atypAN group showed increasing anxiety and stable binge-eating trajectories compared to AN and BN groups. The atypAN group comprised significantly more people of color than the AN group, but there were no sex differences. **Conclusions:** Results underscore that atypAN is a severe psychiatric disorder. As atypAN may present as less severe than AN and BN and disproportionately affects people of color, clinicians should be mindful of biases that could delay diagnosis and care.

42. Examining Acculturation and Cultural Values Conflict in South Asian American Women with Eating Disorders

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Introduction. Eating disorders (EDs) have been extensively studied among white women in the United States, Western Europe, and Australia but remain understudied in minority populations, particularly South Asian American women. These women navigate unique pressures from both Western and South Asian cultures, which may contribute to eating pathology in distinct ways. This study examines how cultural value conflicts and acculturation may differ between South Asian American women with and without full or subthreshold EDs. **Methods.** South Asian American women (n=212) completed self-report measures, including the Eating Disorder Diagnostic Scale for ED classification, the Suinn-Lew Asian Self-Identity Acculturation Scale (SL-ASIA) to measure acculturation, and the Cultural Values Conflict Scale (CVCS) to assess cultural conflicts related to intimate relationships and gender roles. Analyses of covariance compared SL-ASIA and CVCS scores between first, participants with full-threshold EDs (n=23) and those without full-threshold EDs (n=119) and second, between those with a sub-threshold ED (n=84) and those without a sub-threshold ED (n=58). Exploratory analyses examined differences across ED subtypes. **Results.** Participants with full-threshold EDs reported significantly higher cultural conflict in intimate relationships than controls ($p=.005$). Exploratory analyses revealed the strongest conflict among those with bulimia nervosa ($p=.015$). No significant differences were found in sex role expectations or levels of acculturation across groups. **Conclusions.** Cultural conflict in intimate relationships may play a key role in EDs among South Asian American women, particularly those with bulimia nervosa. These findings underscore the need for culturally-informed interventions.

43. Sex Differences in Training Characteristics and the Relationship to Performance Among Boston Marathon Runners

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Purpose: To compare training modes and training mode changes (TMCs) between male and female marathon runners, and the relationship between training and performance by sex. **Methods:** Adult 2022 Boston Marathon registrants completed an electronic survey pre-race for demographics, experience, and training pre-race. TMCs were calculated by comparing 12-4 and 4-0 month pre-race training characteristics. Race performance was obtained from chip timing data. Separate multivariate analyses of covariance were used to compare training modes by sex, covarying for age and experience. Separate linear regressions were used to assess the effects of pre-race training, and TMCs on performance by sex. **Results:** There were 917 respondents (Females: 495, Males: 422; Performance: $3:45 \pm 0:39$ hr:min). Females completed more bouts of cross-training per week ($p < 0.001$), and total bouts of weekly training (running + cross-training; $p = 0.003$) compared to males. Females completed significantly less weekly running distance compared to males ($p = 0.03$). TMCs did not differ by sex ($p = 0.06$). Training modes explained 48.6% of the variance in performance for females, and 61.9% for males. Running volume was associated with improved performance among males ($p < 0.001$). Running more quality sessions (i.e., workouts) was associated with improved performance among females ($p = 0.01$). Increased cross-training bouts per week were associated with better performance for both sexes (p -range: < 0.001 - 0.02). TMCs of relatively reduced runs per week pre-race was associated with better performance for females ($p < 0.001$). **Conclusions:** Training mode strategies for a competitive marathon differed by sex, which were significantly associated with improved performance, suggesting that behaviors may lead to sex-specific advantageous training adaptations.

44. Sex Differences in Exercise Participation among Veterans: A LIMBIC-CENC Study

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Background: National physical activity guidelines for adults include weekly moderate-to-vigorous aerobic exercise (MVAE) and strength training (STR) targets for health-related benefits. These exercise targets are not sex-specific; however, male and female military Veterans may engage in exercise-related activities differently, which may inform the need for sex-specific education or other interventions to meet those targets. Objectives: Describe MVAE and STR participation among military Veterans and compare odds of meeting MVAE and STR recommendations between sexes. Methods: Veterans from the Long-term Impact of Military-relevant Brain Injury Consortium—Chronic Effects of Neurotrauma Consortium prospective longitudinal study (n=1,715; aged 42.0±10.7 years, n=228[13.3%] female) self-reported their exercise activities via the Behavioral Risk Factor Surveillance Survey. Responses were examined to determine whether they met recommendations for MVAE and STR, both recommendations, or neither recommendation (referent group). Associations in meeting MVAE and STR recommendations by sex were tested with a multinomial logistic regression model covarying for age, years of military service, pain interference, depression symptoms, education attainment, and relationship status. Odds ratios (ORs) with 95% confidence intervals (95%CI) were calculated and considered statistically significant if they did not include 1.0. Results: Overall, n=284(16.6%) met both MVAE and STR recommendations; n=277(16.2%) met MVAE only; n=376(21.9%) met STR only; and n=777(45.3%) met neither. Female Veterans had lower odds of meeting only STR recommendations relative to males (OR[95%CI]=0.48[0.32,0.73]). There were no other sex differences observed. Conclusions: Sex-specific considerations may benefit future exercise-related research and education efforts with Veterans, where female Veterans may benefit from supplemental focus on STR activities.

45. The Influence of Athlete Demographics on Immediate Removal from Play Following Concussion in Adolescent Athletes

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Background: Delayed removal from play after a sport-related concussion is linked to greater symptom severity in young athletes and longer recovery in collegiate athletes. The factors associated with delayed removal from play are unknown. Objective: To investigate the association between athlete age, sex, concussion history, sport type, previous diagnosis of ADHD, anxiety, or depression and time played immediately following a concussion. Methods: We conducted a cross-sectional study of 143 adolescent athletes (15.5 ± 1.5 years, 41% female, 12.9 ± 8.0 days post-concussion) reporting to a hospital concussion clinic. They completed a concussion intake form identifying their sport, symptoms, and amount of time they continued to play following their concussion. Removal from play was sorted into four categories (immediately removed, <5 minutes after injury, 5-15 minutes after injury, and >15 minutes after injury). Sports were categorized as collision, contact, and non-contact. Independent samples t-tests, chi-square tests, and a multiple logistical regression were used to examine relationships between groups. Results: Most athletes (50%) reported immediate removal from play, 28% continued to play for greater than 15 minutes, 11% continued to play for 5 to 15 minutes, and 11% continued to play for less than 5 minutes. Boys were more likely to be immediately removed from play (67% vs 33%, $p=0.05$). There were no significant associations between the immediate removal from play and age, sport type or existing medical conditions. Conclusions: Boys are more likely than girls to be immediately removed from play after sustaining a concussion.

46. Collision Sports Participation and Acoustic Startle Reflex in Female Adolescent Athletes Following Concussion

Jessie R. Oldham, PhD, Physical Medicine and Rehabilitation, School of Medicine; Daniel E. Bradford, PhD, School of Psychological Science, Oregon State University; Angelica DeFalco, BS, School of Psychological Science, Oregon State University; Shannon Nagle, BS, Dept. of Orthopedics, Boston Children's Hospital; Rebekah M. Mannix, MD, Dept. of Emergency Medicine, Boston Children's Hospital; William P. Meehan, III, MD, Dept. of Orthopedics, Boston Children's Hospital

Background: Collision and contact sports carry a greater risk of concussion and repetitive head impacts, and female athletes are significantly underrepresented in this area of research. Recent concussions and concussion history are both associated with acoustic startle suppression in adolescent athletes, but it is unknown how exposure to repetitive head impacts from collision sports participation may influence startle response post-concussion. **Purpose:** To investigate the influence of collision and contact sports participation on the acoustic startle reflex in female adolescent athletes following concussion. **Methods:** We conducted a cross-sectional study on 16 adolescent athletes with a recent concussion (age: 15.1 ± 2.6 years, time since concussion: 35.3 ± 17.2 days). All participants self-reported their sport type (collision/contact vs limited contact/non-contact). Acoustic startle probes were administered to participants through noise-canceling headphones. The startle reflex was recorded via electromyography using electrodes placed under the right eye. The dependent variable was mean startle magnitude (μV), and sport type was the independent variable. We used an independent samples t-test to compare acoustic startle magnitude between the sport types. **Results:** Mean startle magnitude was not statistically significantly different ($t(14)=-1.28$, $p=0.22$) between the collision/contact sport athletes ($77.0 \pm 25.9 \mu\text{V}$) and limited contact/non-contact sport athletes ($98.6 \pm 38.9 \mu\text{V}$). **Conclusion:** Collision sports participation does not appear to influence acoustic startle magnitude in female adolescent athletes. However, the collision/contact sport athletes did have a lower startle magnitude compared to other sport types. Future research should continue to investigate the consequences of repetitive head impacts in female athletes.

47. Evaluation of Pediatric Concussion Visits and Associations with Healthcare Received in US Emergency Departments from 2010-2019

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Background: Collision and contact sports carry a greater risk of concussion and repetitive head impacts, and female athletes are significantly underrepresented in this area of research. Recent concussions and concussion history are both associated with acoustic startle suppression in adolescent athletes, but it is unknown how exposure to repetitive head impacts from collision sports participation may influence startle response post-concussion. Purpose: To investigate the influence of collision and contact sports participation on the acoustic startle reflex in female adolescent athletes following concussion. Methods: We conducted a cross-sectional study on 16 adolescent athletes with a recent concussion (age: 15.1 ± 2.6 years, time since concussion: 35.3 ± 17.2 days). All participants self-reported their sport type (collision/contact vs limited contact/non-contact). Acoustic startle probes were administered to participants through noise-canceling headphones. The startle reflex was recorded via electromyography using electrodes placed under the right eye. The dependent variable was mean startle magnitude (μV), and sport type was the independent variable. We used an independent samples t-test to compare acoustic startle magnitude between the sport types. Results: Mean startle magnitude was not statistically significantly different ($t(14)=-1.28$, $p=0.22$) between the collision/contact sport athletes ($77.0 \pm 25.9 \mu V$) and limited contact/non-contact sport athletes ($98.6 \pm 38.9 \mu V$). Conclusion: Collision sports participation does not appear to influence acoustic startle magnitude in female adolescent athletes. However, the collision/contact sport athletes did have a lower startle magnitude compared to other sport types. Future research should continue to investigate the consequences of repetitive head impacts in female athletes.