

Institute for Women's Health 20th Annual
Women's Health Research Day
Poster Abstracts
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1. Body Dissatisfaction as a Mediator Between Weight Bias Internalization and Eating Pathology: Sex Differences

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Weight-bias internalization (WBI) entails adopting negative weight-based stereotypes, whereas body dissatisfaction captures a general unhappiness with one's body shape and/or appearance. Though a large amount of literature associates WBI with body dissatisfaction and the development of eating pathology, the mechanisms of these associations remain unexplored. The present study examines body dissatisfaction as a mediator of the relationship between WBI and disordered-eating behaviors (bingeing, purging, restriction, excessive exercise, and muscle building), and sex differences in this association. Participants were 3,773 students from 13 universities across 7 countries. WBI was assessed via the 11-item Modified Weight Bias Internalization Scale (WMBI-M). We assessed eating disorder behaviors and body dissatisfaction using the 45-item Eating Pathology Symptoms Inventory (EPSI). Overall, body dissatisfaction significantly mediated the relationship between WBI and bingeing, purging, restricting, excessive exercise, and muscle building as indicated by bootstrap confidence intervals excluding zero. Sex significantly moderated this relationship for bingeing (index = $-.1368$, SE = $.0671$, 95% CI [$-.2671$, $-.0063$]), purging (index = $-.0580$, SE = $.0293$, 95% CI [$-.1152$, $-.0018$]), restriction (index = $-.0471$, SE = $.0252$, 95% CI [$-.1008$, $-.0009$]), excessive exercise (index = $-.0534$, SE = $.0265$, 95% CI [$-.1111$, $-.0058$]), and muscle building (index = $-.0098$, SE = $.0070$, 95% CI [$-.0299$, $-.0002$]). Results indicate that body dissatisfaction is a mechanism linking WBI to eating-disorder behaviors, and this effect is stronger for cisgender females than cisgender males on (EPSI scales whose confidence interval did not include 0). Future research should explore interventions and treatment to reduce the impact of WBI and body dissatisfaction on eating pathology.

2. Victimization Trauma and Eating Pathology: A Global Perspective

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Exposure to traumatic events is a well-established risk factor for eating pathology, including binge eating, purging, restricting, and excessive exercise. This association has been primarily explored in higher-income countries, like the United States. The goal of this study was to elucidate the associations among victimization trauma (physical assault, sexual assault, and other unwanted sexual experience assessed) exposure and (binge eating, purging, restriction and excessive exercise) in a global sample of women. Participants were 2,458 women attending universities across seven countries (US, UK, Canada, Germany, Iran, Turkey, Colombia) who were recruited through their undergraduate participant pool. Students who completed these online survey questionnaires earned course credit. Eating pathology was measured using the 45-item Eating Pathology Symptoms Inventory. Victimization trauma exposure was measured using the sum of three items from the Standard Life Events Checklist-5. Associations among eating pathology and victimization trauma were tested using multiple regression, controlling for subjective socioeconomic status, country status, depression, anxiety, and stress levels. Victimization trauma exposure was significantly associated with binge eating ($\beta = .83, p < .001$), purging ($\beta = .82, p < .001$), restriction ($\beta = 1.07, p < .001$), and excessive exercise ($\beta = .30, p = .016$). Results replicate previous findings that victimization trauma is associated with eating disorder symptomatology and extend this work by interrogating this association in a global sample. Further clarifying this relationship will help identify key risk factors in underlying eating pathology across cultural contexts.

3. Patterns of Food Insecurity, Self-Conscious Emotions, and Eating Pathology: An Exploratory Latent Profile Analysis and Distribution Across Gender Among Multinational College Students

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While food insecurity (FI) and negative self-conscious emotions (e.g., guilt, shame) have been implicated in the onset and maintenance of eating pathology, there has been limited investigation of the differential contributions of self-conscious emotions and FI on eating-disorder symptomatology, particularly outside of the United States. Latent profile analysis was used to identify profiles based on FI, self-reported state self-conscious emotions, as well as self-reported bingeing, purging, cognitive restraint, and body dissatisfaction in a large, multinational sample of college students ($N = 3,184$). Results supported a 3-profile solution. Profile 1 ($n = 2118$) demonstrated low self-conscious emotions, Profile 2 ($n = 649$) was characterized by high negative self-conscious emotions and high body dissatisfaction, and Profile 3 ($n = 417$) showed the highest levels of negative self-conscious emotions, FI, and eating pathology, particularly purging. Pearson's chi-squared tests found significant differences in profile assignment by self-reported gender ($\chi^2 = 63.57, p < .001$) and country ($\chi^2 = 51.97, p < .001$). Cisgender men ($R = 3.14$) and German respondents ($R = 2.47$) were overrepresented in Profile 1, and those identifying as third gender ($R = 2.25$) or declined to identify ($R = 2.57$) were overrepresented in Profile 2. In Profile 3, cisgender women ($R = 2.66$) and respondents from Iran ($R = 3.03$) were overrepresented, while cisgender men ($R = -4.74$) and respondents from Germany ($R = -3.16$) and Turkey ($R = -2.54$) were underrepresented. The present study suggests that food security may moderate the effect of negative self-conscious emotions on eating pathology, suggesting this relationship is not merely driven by structural constraints unique to the US food assistance system. Moreover, gender identity and culture differentially contribute to the risk of FI-related compensatory behaviour development, with cisgender women at greatest risk of developing binge eating and purging. Future studies are needed to evaluate cultural risk factors associated with bulimic spectrum pathology in non-western settings, such as Iran.

4. Measuring Dopamine Function in Women with Bulimia Nervosa with Neuromelanin-Sensitive Magnetic Resonance Imaging: A Preliminary Investigation

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Dopamine alterations have been implicated in the pathophysiology of bulimia nervosa (BN), a disorder that primarily impacts women. However, the cost and invasiveness of methods traditionally used to image dopamine, such as positron emission tomography, have hampered efforts to clarify its role in BN. Neuromelanin is a by-product of dopamine metabolism that has paramagnetic properties and accumulates in the midbrain, and thus can be imaged using non-invasive neuromelanin-sensitive MRI (NM-MRI). Here, we leveraged NM-MRI to compare proxy dopamine function in the substantia nigra (SN) in women with BN to healthy volunteer (HV) women. NM-MRI data were collected from 5 women with BN and 9 HV women [mean age=29.07 years (SD=7.69), mean body mass index (BMI)=22.51 (SD=4.04)]. Women with BN reported an average of 5.7 binge-eating and 30.5 self-induced vomiting episodes per week, and had an average illness duration of 15.87 years. NM signal was averaged across the SN following a standard analytic pipeline. Independent sample t-tests compared NM signal between groups, controlling for age and BMI. Women with BN showed marginally lower NM signal in the SN compared to HV, $F(1,9)=4.26$, $p=.06$. Although underpowered, this pilot study demonstrates the feasibility of NM-MRI for BN. Future research should employ NM-MRI in larger samples and during adolescence, when BN most commonly develops. Given the limited effectiveness of pharmacological treatments for BN, future NM-MRI research could inform brain-based interventions for this pernicious disorder.

5. Female-Specific Reductions in Alcohol Intake Following Fecal Microbiota Transplant in Mice

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Alcohol Use Disorder (AUD) remains a significant burden of health, but treatment approaches remain limited. One potential approach is manipulation of the gut microbiome. Alcohol consumption changes the microbiome by altering bacterial diversity, intestinal permeability, mucosal immunity. Previous work has shown that a fecal microbiota transplant (FMT) can ameliorate AUD-related behaviors, including alcohol consumption. However, most preclinical and early phase clinical trial studies have been performed in male cohorts. Studying how FMT affects females is important, as there are known sex differences in the gut microbiome, ethanol consumption, and inflammatory responses. The goal of this study is to use stools from healthy human donors in a mouse model of alcohol consumption to determine what donor stool characteristics translate to the greatest reduction in alcohol consumption. Female and male C57BL/6 mice were treated with a course of antibiotics prior to FMT administration to encourage engraftment. Three anonymized donor stools were used, each with different amounts of beneficial gut bacteria. Following engraftment, mice underwent five weeks of drinking. In female mice, but not in male mice, two of the three donors resulted in decreases in ethanol intake and preference. Ongoing metagenomic studies are investigating how the observed changes in ethanol intake and preference are linked to FMT engraftment and microbiome diversity. Using a cross-species FMT model, we identify a female-specific reduction in alcohol intake, underscoring the importance of sex as a biological variable in microbiome-based therapies for alcohol use disorder.

6. Risk Drinking Levels During Pregnancy: Associations Across SAMHSA Recovery Domains

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No alcohol use is recommended during pregnancy, yet some continue to drink and women with alcohol use disorder (AUD) require targeted support. Reduced drinking relates to better outcomes in non-pregnant people, though no clinical guidelines beyond abstinence during pregnancy exist. This study examined associations between WHO drinking risk levels and functioning across SAMHSA domains among pregnant women. This analysis from the 2021-2023 National Survey on Drug Use and Health included women reporting current pregnancy. Average daily alcohol consumption in the past 30 days was coded into WHO drinking risk levels (none, low, moderate, high, very high). Hierarchical linear regression models assessed associations of drinking risk across SAMHSA recovery domains: emergency room (ER) visits (Health), difficulty participating in social activities (Community), difficulty completing household responsibilities (Home), and functional impairment (Purpose). Models included age, race, sexual identity, education level, and employment. The sample (n=2,051) was 26-34 years old (43.8%), 55.3% White, 85.4% heterosexual, and 60.9% had some college. Lower drinking risk was associated with fewer ER visits ($\beta=.140$, $p=.031$) and less difficulty completing household responsibilities ($\beta=.099$, $p=.042$). Drinking risk was not a significant predictor for functional impairment ($p=.074$) or social activities ($p=.17$) models. Sexual identity was a significant predictor in all models ($p<.001$). Abstinence during pregnancy is the safest option, but reduced drinking may positively influence functioning for people unable to abstain. Sexual minority status emerged as a potential risk factor warranting further study. AUD clinical guidelines should consider harm-reduction strategies for pregnant women. Future studies should elucidate long-term dyadic outcomes.

7. Opioid and Other Substance Use, Psychological Functioning and Pain Severity in Individuals with Chronic Pain

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Chronic pain (CP) is a serious public health issue. Individuals with mental health comorbidities (MHC) are at a greater risk for substance use/misuse. The present study examined substance use and MHC in an online sample of individuals with chronic pain. This secondary analysis used data from N=79 individuals with chronic pain who participated in a RCT of Contingency Management targeting daily survey completion. Participants were recruited through Research Match and all provided informed consent to study participation. Baseline measures included: demographics, opioid and other substance use; symptoms of depression and anxiety (HADS), and recent pain severity. Participants rated their pain severity at baseline on a scale of 0) no pain to 10) pain as bad as you can imagine. Substance use and pain severity data were also collected daily over the 28-day period of the RCT. The present study used descriptive statistics to characterize the sample and chi-square analyses for categorical variables and t-tests for continuous measures. "Mean age of the sample was 44.76 years (SD 14.55). Three fourths of the sample was female (75.3%); 90.1% identified as white and 88.8% were not Latinx. Nearly all participants screened above the cut-off for borderline/probable depression and/or anxiety (HADS > 8), with 78.5% screening positive for both conditions. On average participants rated their pain severity 5.45 (SD 1.49). Substance use during the 28-day RCT was common, with 45.7% reporting some opioid use; 58.0% reporting alcohol use; and 25.9% reporting cannabis use. Among those using substances, polydrug use was common, with 30.9% reporting use of two substances and 12.3% reporting use of all three. Additional analyses will look at relationships between substance use and pain severity during the 4-week RCT period. Substance use was the norm in individuals with CP, and opioids and alcohol had the highest endorsement rates. Further research is necessary to understand predictors and risks associated with poly substance use in individuals with chronic pain.

8. Sex Differences in Cannabis Use Disorder Severity and Symptom Endorsement

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Cannabis Use Disorder (CUD) rates have increased substantially since decriminalization and legalization across the United States. While CUD is more common in men, women metabolize cannabis differently, progress to CUD more quickly, and experience some symptoms stronger in some samples. This study examines CUD severity and symptom endorsement by biological sex in a recent, nationally representative sample. Data from the 2021-2024 National Survey on Drug Use and Health (NSDUH) was analyzed. The exposure was sex. Outcomes included past-year CUD severity and individual DSM-V symptoms. Sex-stratified weighted prevalences and Rao-Scott chi-squared tests detected differences in CUD symptom criteria. Weighted ordinal logistic regression assessed the association between sex and CUD severity. CUD was more prevalent in men than women (8.0% vs. 5.3%) with a similar pattern seen across levels of severity. Women were more likely to endorse withdrawal (29.8% vs 25.1%). Men more frequently endorsed spending excessive time on cannabis (77.1% vs 80.0%), experiencing disruptions at work, school, or home (6.6% vs 8.1%), and giving up important activities (12.7% vs 15.4%). Among 19,819 respondents with CUD, there were no significant sex differences in odds of increased severity of CUD. Women with CUD may endorse more physical symptoms and fewer functional impairment symptoms than men. CUD screenings should consider sex-specific differences in CUD presentation. Further research is needed to determine what drives these differences and their potential impact on diagnosis rates and treatment efficacy.

9. Premenstrual Symptoms and their Association with Mood and Substance Use in Young Adult Women

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Premenstrual syndrome (PMS) affects an estimated 20% to 40% of reproductive age women and is characterized by physical and mood symptoms during the luteal phase of the menstrual cycle. PMS has been linked to a number of negative outcomes including higher medical costs, work absences, and behavioral health problems, with mixed evidence regarding substance use. We analyzed data from Spit for Science, a longitudinal study of college students (N = 1,208). PMS symptoms were assessed with the PAF-SF scale. Depressive and anxiety symptoms (SCL-90) and substance use (AUDIT C, cannabis and cigarette/vape) use frequency were tested as outcomes. We fit multiple linear regressions for PMS total and subscales (water retention, mood, pain). PMS total score was positively associated with anxiety ($\beta = 0.49$, SE = 0.03, 95% CI [0.42, 0.56]) and depression ($\beta = 0.49$, SE = 0.03, 95% CI [0.42, 0.56]). All PMS subscales were significantly related to anxiety and depression; effects were largest for the mood/affective subscale (anxiety: $\beta = 0.46$, SE = 0.04, 95% CI [0.39, 0.53]; depression: $\beta = 0.57$, SE = 0.03, 95% CI [0.51, 0.64]), followed by the pain subscale (anxiety: $\beta = 0.39$, SE = 0.04, 95% CI [0.32, 0.47], $p < .001$; depression: $\beta = 0.39$, SE = 0.03, 95% CI [0.32, 0.46]). The water retention subscale showed a small positive association with alcohol use ($\beta = 0.12$, SE = 0.05), which attenuated to non-significance with robust SEs. Cannabis and tobacco/vaping were not significantly associated with PMS. Greater PMS severity was strongly associated with higher anxiety and depressive symptoms. We observed no significant associations between PMS and substance use. Longitudinal analyses are needed to clarify temporal relations between PMS and mood symptoms.

10. Prenatal Mental Health and Cannabis Use: Implications for Women Centered Perinatal Care

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Women experience high rates of stress, anxiety, and depressive symptoms across the lifespan, with the prenatal period representing a time of heightened vulnerability. Some pregnant women use cannabis as a perceived coping strategy, despite evidence linking prenatal cannabis use to adverse pregnancy and infant outcomes. This study compared mental health indicators in postpartum women who did and did not report prenatal cannabis use to inform women centered perinatal care. Postpartum women (n=319) were recruited from a tertiary care Mother-Infant Unit. Participants completed an anonymous survey assessing demographics, prenatal cannabis use, the Perceived Stress Scale (PSS), PROMIS-Anxiety Short Form, and the Edinburgh Postnatal Depression Scale (EPDS). Data were analyzed using descriptive statistics and independent samples t-tests. Participants were predominantly White (54.1%) and Black (38.4%) with a mean age of 29.74 years. Most were married or living as married (60.5%) and over half reported a college degree (55%). Nearly one-quarter (N= 68; 21.3%) reported cannabis use during pregnancy. Women reporting prenatal cannabis use had significantly higher stress scores (M=16.71) than those who did not (M=13.98, p=.009) and higher depressive symptoms (M=7.12 vs. M=5.10, p=.006). Anxiety scores did not differ between groups (p=.489). Among women who reported cannabis use prenatally, 30.0% reported doing so to relieve stress or anxiety. Findings underscore the importance of ongoing assessment of prenatal mental health symptoms, paired with nonjudgmental, evidence-based discussions about cannabis use and alternative coping strategies. Women-centered, supportive communication may better address perinatal mental health concerns during this vulnerable period.

11. Maternal Well-Being and Attachment Among Depressed and Non-Depressed Postpartum Cannabis Users

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The increasing prevalence of perinatal cannabis use raises concerns regarding maternal mental health and postpartum well-being. Maternal psychological distress during pregnancy and the postpartum period is associated with adverse outcomes for both mother and child. However, less is known about the mental health profiles of postpartum cannabis users, particularly differences between women with and without elevated depressive symptoms. This secondary analysis included postpartum cannabis-using women (N = 65) drawn from an ongoing study of women (N = 263) recruited from a mother–infant hospital unit. Participants completed anonymous surveys assessing substance use and mood, including the Edinburgh Postnatal Depression Scale (EPDS), perceived stress, anxiety, and maternal postnatal attachment. Women scoring ≥ 10 on the EPDS were categorized as having elevated depressive symptoms. Group differences were examined using chi-square tests and independent samples t-tests. Thirty-two percent of cannabis-using women scored above the EPDS cutoff for depression. Cannabis-using mothers with elevated depressive symptoms reported significantly higher stress ($t(61) = 7.13, p < .001$) and anxiety ($t(62) = 6.87, p < .001$) compared to non-depressed cannabis-using mothers. Maternal postnatal attachment scores did not differ significantly between groups ($t(62) = -0.55, p = .587$). Among postpartum cannabis users, elevated depressive symptoms were associated with significantly greater psychological distress but not differences in maternal attachment. These findings underscore the importance of screening for depression and anxiety among postpartum cannabis users and warrant further research to clarify the role of cannabis use within the context of perinatal mental health.

12. Acceptability, accessibility, and perceived benefits of an expanded fetal ultrasound protocol for prevention of and intervention in substance use in pregnancy

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Pregnant women with substance use disorders (SUDs) experience barriers to prenatal care and SUD treatment, contributing to inequitable maternal and infant outcomes. Evidence suggests fetal ultrasounds may provide an opportunity to enhance engagement in prenatal care for women with current or past SUDs. In a pilot randomized controlled trial, two patient-centered, trauma-informed ultrasound protocols were tested with pregnant women with current or past SUDs. Participants were randomized to a non-diagnostic time-controlled (28 minutes) fetal ultrasound session plus either standardized education and support (“comparator group”), or education about fetal growth and behavior delivered with motivational interviewing techniques during the ultrasound (“NEXUS intervention group”). This qualitative descriptive study evaluated the acceptability, accessibility, and perceived benefits of two ultrasound protocols through semi-structured interviews with a subset of volunteer postpartum participants (n=23), analyzed using a team-based thematic analysis process. Participants described both protocols as acceptable and beneficial, specifically related to the intentional ultrasound experience, non-judgmental staff, extended time to watch and learn about the baby, and differences from their traditional obstetric ultrasounds. Accessibility was supported; participants highlighted value of the ultrasound protocols for engagement and additional resources. Overall, expanded ultrasound protocols, combined with patient-centered and trauma-informed care were described as acceptable, accessible, and valued by participants. Participants emphasized that patient-centered, non-judgmental care and extended ultrasound time facilitated bonding and motivated prenatal care engagement. Findings support further research to assess feasibility and acceptability of integrating these ultrasound protocols into standard care, particularly for women at high risk due to SUD or mental health conditions.

13. Analysis of Breastfeeding Rates at Discharge Among Integrated OBGYN-Addiction Care Program Patients

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Among pregnant people, substance use disorders (SUD) are common. Despite benefits like reduced infections and stronger maternal-infant bonding, breastfeeding rates at hospital discharge remain low for women with SUD. This study describes breastfeeding rates among women with SUD in regards to psychiatric and SUD comorbidities and lactation consultation receipt. This secondary analysis reviewed retrospective medical records of pregnant and postpartum patients with SUD at an integrated OBGYN-Addiction clinic who consented to be part of a research registry (year1-Y2). Infant records provided discharge breastfeeding status; maternal records provided psychiatric and SUD co-morbidities. Chi-square tests assessed breastfeeding status differences by maternal variables, including documented psychiatric diagnosis, multiple SUD diagnoses, and lactation consultation receipt. Participants (n=48, mean age 30.7, 62.5% White, 33.3% Black) had a 58.3% breastfeeding rate at infant discharge. Breastfeeding rates did not differ significantly by race ($\chi^2 = 4.41$, $p = .249$). Nearly all participants (98.5%) had comorbid psychiatric conditions, with no significant breastfeeding rate differences based on psychiatric comorbidity ($\chi^2 = 0.060$, $p = .807$) or having one versus multiple SUD diagnoses ($\chi^2 = 0.378$, $p = .539$). Most patients (56.3%) lacked a lactation consult, which did not significantly impact breastfeeding rates ($\chi^2 = .196$, $p = .658$). This population's complex needs highlight the value of comprehensive, multi-disciplinary care models in supporting health outcomes for SUD-impacted maternal-infant dyads. Larger studies are warranted to examine breastfeeding patterns and correlates among women with SUD, informing the future development of tailored lactation consultation services.

14. Employing a Strength-Based Bright Spot Approach to Lowering Opioid Mortality in Virginia: Implications for Pregnant and Parenting Populations

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Drug overdose is a leading cause of preventable death and pregnancy-associated mortality in the U.S. Learning from “Bright Spot” communities (communities with lower-than-predicted opioid mortality) could play a critical role in identifying key strategies to reduce opioid mortality among pregnant and postpartum women and more broadly. Objectives: 1) To identify Bright Spots with low opioid mortality among all adult populations in Virginia; and 2) To employ a strengths-based needs assessment of substance use disorder (SUD) resources for pregnant and parenting women within the Greater Richmond region. Mixed-methods evaluation guided by a community stakeholder-engaged process, including: 1) socioecological data analysis using 2016–2022 claims data, 2016–2023 Virginia Department of Health opioid mortality data, and 2015–2022 census data; 2) in-depth interviews with community stakeholders, and 3) community needs assessment survey. Multivariate and residuals analyses were completed to identify Bright Spots. Thematic coding analysis was completed to identify themes related to SUD within the Greater Richmond region. We identified Bright Spots with lower-than-predicted opioid mortality among all adults. In the Greater Richmond region, there was improvement in rates of counseling and prescriptions for medications for opioid use disorder among maternal populations between 2016-2021. Community needs assessment survey participants (n=89) reported needs related to OUD treatment, including recovery residences/safe housing (91%) and safe childcare (91%). Stakeholders (n=35) provided key insights into allocation of resources for pregnant/parenting populations. Employing a community-engaged strength-based approach can identify existing solutions to reduce opioid-related deaths among women and children.

15. Risk Factors for Postpartum MOUD Discontinuation: A Narrative Review

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During the postpartum period, women with opioid use disorder (OUD) are at increased risk of overdose and many discontinue medication treatments for opioid use disorder (MOUD). MOUD discontinuation in postpartum women is known to be correlated with many demographic, clinical, and socioeconomic conditions. Clinical guidelines for assessing risk of postpartum MOUD discontinuation are sparse and treatment relies on provider insight and experience. This brief narrative review is being conducted to assist in identifying all predictors and risk factors in the care of pregnant and postpartum women with OUD. We conducted a structured literature search using NCBI PubMed MEDLINE, PsycINFO, Academic Search Complete, Web of Science, and Google Scholar. Search criteria included “postpartum MOUD discontinuation” and studies discussing postpartum MOUD discontinuation risk factors or predictors. Eligible studies included any cohort or randomized control trial published between 2015-2025 in the United States that included postpartum patients and collected MOUD dosage or discontinuation data >3 months postpartum. 58 unique studies were identified. Pregnancy was generally associated with a decreased risk of MOUD discontinuation, although this risk increased steadily in the postpartum period. Preliminary risk factors identified across multiple studies included short MOUD duration prenatally, nonwhite race, incarceration, and residence in a state with punitive substance abuse policies. This study is still underway. This ongoing review is intended to synthesize existing literature on risk factors for MOUD discontinuation during the postpartum period to clarify future directions for clinical decision-making regarding the relative risk of MOUD discontinuation during and after the transition to postpartum care.

16. Pain and Insomnia Severity in Patients with Opioid Use Disorder

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Insomnia and disordered sleep have negative effects on quality of life and are often comorbid with opioid use disorder (OUD). Additionally, chronic pain is correlated with insomnia. Research indicates that improving sleep among patients on medication for OUD can also help improve chronic-pain related outcomes. Still, how intensity, frequency, and location of pain is related to sleep among people with OUD is not well understood. This study examines how the intensity, frequency, and location of pain correlates with insomnia symptom severity in a sample of OUD patients in outpatient buprenorphine treatment. Participants for this secondary analysis were patients with OUD who consented to the Sleep in Opioid Use Disorder Recovery & Treatment (SORT) research study. SORT participants included adults stabilized on buprenorphine recruited from an addiction medicine clinic between 2022-2023 (recruitment rate 78.8%). Participants completed a survey which included demographic questions, the PROMIS10 pain intensity item, a question that asked participants to provide a count of how many days over the past two weeks they experienced pain, and information about the location of pain. Insomnia symptoms were measured via the Insomnia Severity Index (range 0-28, higher scores indicating worse symptoms). Bivariate correlations and a hierarchical linear regression model were performed to examine the relationship between demographic factors, chronic pain, pain location, and insomnia severity. Participants (n=129) were mostly female (60.9%), 40 years old on average, and 54.3% White, 37.1% Black, and 8.6% other. Mean duration of buprenorphine receipt was 2.52 years \pm 2.30 (SD). Bivariate analyses showed that being female ($r = 0.21$, $p = 0.019$), higher intensity ($r = 0.37$, $p < 0.001$) and frequency ($r = 0.31$, $p < 0.00$) of pain were significantly correlated with more severe insomnia symptoms. After controlling for age, race, and sex, intensity of pain was significantly associated with increased insomnia symptomatology ($b = 0.33$, $p = 0.005$) in the hierarchical regression model ($F(7, 90) = 3.78$, $p < 0.001$, $R^2 = 0.23$). Location and frequency of pain were not significant variables in the model. For OUD patients stabilized on buprenorphine, intensity of pain may be a particularly salient disruptor of sleep. Interventions that reduce the intensity of pain in patients with OUD may help improve sleep and thus may contribute to better treatment outcomes and

17. Health, Quality of Life, and Insomnia Among Individuals with Opioid Use Disorder

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Sleep disturbances are common among individuals with opioid use disorder (OUD) and may contribute to reduced quality of life (QoL) and physical and mental health concerns. The role that sex differences play in these relationships is understudied. This study examined sex differences in insomnia, QoL, and patient-reported overall health status among individuals in buprenorphine treatment for OUD. This is a secondary analysis of cross-sectional survey data from the Sleep in Opioid Use Disorder Recovery & Treatment (SORT) Study. Participants completed an online survey which included demographic items, the Insomnia Severity Index (ISI), the PROMIS-10 overall health measure, and the WHO QoL scale. One-way ANOVAs and post-hoc Tukey tests were used to compare men and women with insomnia to those without insomnia on the QoL and PROMIS-10. 58.5% scored ≥ 11 on the ISI. Insomnia severity was significantly negatively correlated with PROMIS-10 ($r = -0.53$, $p < 0.001$) and QoL ($r = -0.318$, $p < 0.001$) scores and significantly positively correlated with identifying as female ($r = 0.206$, $p = 0.019$). There were significant group differences in PROMIS-10 scores ($F(3,119) = 7.629$, $p < 0.001$). Among people receiving buprenorphine in outpatient OUD treatment, insomnia may be related to poorer physical and mental health outcomes and reduced QoL. The relationship between insomnia, patient-reported overall health status, and sex is complex and warrants further research. Results from this study underscore the potential impact that interventions which account for sex differences could have when addressing sleep disturbances among people with OUD.

18. Insomnia and Recovery Capital Among Men and Women with Opioid Use Disorder

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Sleep disturbances are common among people with Opioid use Disorder (OUD) and may negatively impact recovery outcomes and overall well-being. Recovery capital, defined as internal and external resources that individuals with substance use disorders may accumulate to sustain their recovery, plays a critical role in long term recovery. The connection between sleep disturbances and recovery capital among people with OUD is unexplored. This study examines sleep disturbances and recovery capital among individuals in OUD treatment with buprenorphine. This is a secondary analysis of data from the Sleep in Opioid Use Disorder Recovery & Treatment (SORT) study. SORT participants included adults stabilized on buprenorphine recruited from an outpatient clinic between 2022-2023 (recruitment rate 78.8%). Participants completed an electronic survey which included demographic questions, the Insomnia Severity Index (ISI), and assessed recovery capital via the Substance Use Recovery Evaluator (SURE, range 21-63, higher scores indicate more capital). Participants were classified as having clinically significant insomnia symptoms if $ISI \geq 11$. Descriptive statistics were used to capture sample demographics. Independent sample t-tests were used to assess differences between participants with and without insomnia on different recovery capital domains. The majority of participants (N=129) were cisgender women (62%), 55.8% were white and 35.6% Black; mean duration of buprenorphine receipt was 2.52 years (SD = 2.3). Seventy six (58.9%) participants reported clinically significant insomnia symptoms. Overall, SURE scores were higher in participants with $ISI \leq 10$ (M=56.8, SD=7.0) and lower among participants with $ISI \geq 11$ (M=50.2, SD=8.1). On the SURE subscales, participants with clinically significant insomnia had lower scores on measures related to selfcare ($p < 0.001$) and life outlook ($p = 0.005$). Sleep disturbances were common in this sample and were related to less recovery capital. Those with greater insomnia symptoms report lower levels of self-care and less positive outlook on life. These results underscore the potential positive role that addressing sleep health in the context of outpatient buprenorphine-based treatment could have on long-term OUD recovery outcomes.

19. The effect of cumulative opioid use on cognitive outcomes in women with HIV

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Opioid use is associated with cognitive impairment in people with (PWH) and without HIV (PWoH). However, it is unknown how cumulative opioid exposure influences cognitive outcomes and if this effect is different by HIV status. Data on women with and without HIV were requested from the Women's Interagency HIV Study (WIHS) for years 2009-2017. Cumulative opioid use was defined as number of visits in which opioid use was reported. A linear mixed effects model was utilized. The primary outcome was global cognitive impairment. Secondary outcomes were individual cognitive domains. Relevant confounders were included in the model. The analysis included 7,125 visits from 2,459 women of which 69.1% were infected with HIV. Opioid use was associated with increased global cognitive impairment regardless of HIV status. Additionally, there was evidence of an interaction between HIV and opioid use in the global cognitive impairment model. Opioid use in women without HIV was associated with a greater increase in global cognitive impairment per visit. Opioid use over time also decreased secondary outcomes including attention and motor function; however, this relationship was not different by HIV status. Cumulative opioid use was associated with increased cognitive impairment, but the extent of the changes varied by HIV status. Surprisingly, women without HIV had a higher rate of change in cognitive impairment. This could be indicative of a threshold of cognitive dysfunction already met by underlying HIV neuropathology. Future studies should be designed to better understand the varying effects of cumulative opioid exposure on PWH and PWoH.

20. Distinct associations of peripheral mitochondrial DNA copy number and bioenergetic function with cognition in women with HIV

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Women with HIV (WWH) are disproportionately affected by cognitive impairment across multiple domains, with learning and memory consistently among the most vulnerable. Mechanistic investigations into the increased burden of cognitive impairment in people with HIV have highlighted mitochondrial dysfunction as a potential contributor. This study examined associations between two peripheral markers of mitochondrial health, mitochondrial DNA copy number (mtDNAcn) and mitochondrial bioenergetic function, and cognitive function in WWH. We hypothesized that mtDNAcn and mitochondrial function metrics would demonstrate distinct associations with cognitive outcomes, particularly learning and memory. Fifty-eight WWH completed 12 neuropsychological tests assessing—verbal learning, verbal memory (recall and recognition), attention, working memory, executive function, fluency, processing speed, and motor function. Peripheral blood mononuclear cells (PBMCs) were isolated, and mitochondrial health was assessed using qPCR (mtDNAcn) and the Seahorse Cell Mito Stress Test (mitochondrial function). Pearson correlations examined associations between mitochondrial health and cognitive domain scores. Participants were on average 54.9 years old (SD=8.2), 94.8% were Black, 58.6% had a lifetime diagnosis of major depressive disorder, and 63.7% met criteria for cognitive impairment in >2 domains. Higher mitochondrial proton leak was significantly associated with worse verbal memory including recall ($r=-0.396$, $P=0.002$) and recognition ($r=-0.284$, $P=0.031$), as well as poorer working memory ($r=-0.261$, $P=0.048$). No significant associations were observed between mtDNAcn and cognition. These findings identify peripheral mitochondrial proton leak as a potential biological contributor to verbal and working memory difficulties in WWH and highlight the importance of assessing multiple dimensions of mitochondrial health when investigating cognitive impairment.

21. Investigating the association between perceived stress in women with HIV and cell-free mitochondrial DNA

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Women and girls represent 53% of the global population living with HIV. Although antiretroviral therapy (ART) has improved life expectancy, it does not address chronic HIV-related inflammation. As a result, women with HIV (WWH) are more likely to develop inflammation-related comorbidities, including depression, and cognitive impairment. Additionally, WWH experience high levels of perceived stress and psychosocial challenges, which further contributes to immune dysregulation and inflammation. Mitochondria may be a key mechanistic link between psychological stress and inflammation. Beyond their role in cellular bioenergetics, mitochondria participate in immune signaling, partly through the release of cell-free mitochondrial DNA (cf-mtDNA) during cellular stress. Circulating cf-mtDNA has emerged as a potential biomarker of systemic inflammation and an objective measure of physiological responses to perceived stress; however, it remains understudied in WWH. This study examined the relationship between perceived stress and cf-mtDNA in WWH. WWH (n=71) provided a blood sample and completed the Perceived Stress Scale (PSS), a validated tool used to assess perceptions of recent stress. Plasma cf-mtDNA was isolated using a plasma-specific lysis method (MitoQuicLy) and quantified via qPCR targeting the ND1 gene, which encodes mitochondria's Complex I core subunit. Expression of ND1 was normalized to β globin, a nuclear reference gene. Linear regression models assessed the association between perceived stress and cf-mtDNA. Analyses evaluated the relationship between circulating perceived stress and cf-mtDNA levels in WWH. Demonstrating the relationship between perceived stress and cf-mtDNA in WWH may identify a biological biomarker that complements self-reported stress measures and enhances assessment of stress-related health outcomes.

22. Understanding the Relationship Between Peripheral Blood Mononuclear Cell and Hippocampal Mitochondria Health in Wistar Rats

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Chronic stress can deleteriously affect many physical and cognitive outcomes in adulthood. While research has shown stress to be a driver of peripheral and central mitochondrial dysfunction, the connection between the mitochondrial function in peripheral blood mononuclear cells (PBMC) and stress-susceptible brain regions like the hippocampus is not well understood. To elucidate on how chronic adolescent stress (CAS) alone may affect metabolic outcomes in both the periphery and the central nervous system, this study employed a CAS paradigm in Wistar rats to investigate hippocampal synaptosomes and PBMC mitochondrial activity. In this study, adolescent rats underwent a 12-day CAS paradigm which included randomized sessions of social defeat and restraint stress. In adulthood, the rats were euthanized and mitochondrial health was assessed by measuring mitochondrial DNA copy number and Mitochondrial Function. Mitochondrial DNA copy number was measured via qPCR, and Mitochondrial function was investigated through a Seahorse Cell Mito Stress Test which can provide measures of basal respiration, maximal respiration, proton leak, spare respiratory capacity, coupling efficiency, non-mitochondrial respiration, and ATP production. Differences in mitochondrial health were assessed using two-way ANOVAs with fixed factors of stress and sex, while the relationships between PBMC and hippocampal mitochondria were analyzed using linear regression models. The results of this work will demonstrate if peripheral mitochondrial metrics are an accessible biomarker that is reflective of Hippocampal mitochondrial health. Overall, this work investigates not only the connections between peripheral and central mitochondrial health in response to stress, but also potential sex differences in mitochondrial responses to CAS.

23. Lipid Nanoparticle-Mediated RNA Delivery for Placental Targeting In PTB

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Preterm birth (PTB), defined as delivery before 37 weeks of gestation, remains the second leading cause of infant morbidity and mortality worldwide, with inflammation-driven PTB representing the most common etiology. Infants born preterm face a higher risk of death, and survivors are more likely to experience long term complications such as respiratory and feeding difficulties, cerebral palsy, and impairments in vision, hearing, or development. Despite its burden, no FDA-approved therapeutics currently exist to prevent PTB, underscoring the urgent need for safe, effective interventions. Since inflammation-driven PTB results from premature activation of inflammatory pathways, RNA-based therapeutics offer a promising approach to modulate key molecules in this cascade. However, safety and delivery challenges limit clinical translation. Lipid nanoparticles (LNPs) offer a clinically validated RNA delivery platform that protects RNA, promotes uptake, and enables tissue-specific targeting. We optimized an LNP formulation for RNA delivery to placental trophoblasts, specialized cells critical to maternal-fetal communication and inflammatory signals involved in triggering labor. The formulation included ionizable lipids, phospholipids, cholesterol, and lipid-anchored poly(ethylene glycol) (PEG), with a targeting ligand added to enhance placental delivery. We characterized the formulations by size, polydispersity index (PDI), zeta potential, and RNA encapsulation efficiency. We evaluated RNA delivery in vitro using luciferase mRNA-loaded LNPs in BeWo cells, a model of placental trophoblasts, and in vivo via intravenous (IV) injection in pregnant mice. Addition of the ligand did not alter LNP size, PDI, zeta potential, or RNA encapsulation efficiency, indicating preserved formulation quality critical for consistent delivery, stability, and reproducibility. In vitro, BeWo transfection showed no difference in luciferase expression between targeted and non-targeted LNPs, suggesting that the ligand may be more involved in navigating systemic delivery challenges than enhancing cellular uptake alone. In vivo IVIS imaging post-IV injection of LNPs in pregnant mice showed increased luminescence in the placentas for targeted LNPs, suggesting that the ligand enhanced accumulation and uptake in the placenta. Additionally, a luciferase assay revealed that targeted LNPs achieved higher placental expression alongside a marked reduction in liver expression, suggesting enhanced delivery specificity. Ligand-functionalized, placenta-targeted LNPs showed enhanced delivery and reporter gene expression in the placenta with reduced off-target delivery to the maternal liver. This approach represents a potential therapeutic avenue for treating placental disorders with improved maternal safety profile during pregnancy.

24. Early Perinatal Distress Trajectories in NICU Mothers Predict Clinical Symptoms at 3 Month Follow-Up

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Mothers with infants in the NICU experience greater depression, anxiety, and traumatic stress, disrupting attachment and infant development (Grunberg et al., 2022; Shaw et al., 2023). Alongside these challenges, they manage complex infant medical needs (Fu et al., 2023), making early identification essential. This study examined which aspects of mental health (depression, stress, PTSD symptoms) predicted outcomes at 3 months corrected gestational-age (cGA), controlling for infant health severity. This secondary data analysis used a longitudinal cohort study of NICU mother-infant dyads (N = 95; 40% Black/African American; 9.5% Hispanic/Latinx; infant gestational age = 30.42 weeks) at a Level IV NICU. Baseline mental health was assessed via Edinburgh Postnatal Depression Scale (EPDS), Parental Stress Scale-NICU, and Perinatal Post-traumatic Stress Questionnaire. Three-month maternal mental health was assessed via the EPDS, GAD-7 scale, and Primary Care PTSD Screen. Infant health was measured using SNAPPE-II scores. Multiple regressions examined which baseline maternal mental health variables predicted depression, anxiety, and PTSD symptoms at 3 months cGA, controlling for infant health severity. Baseline depression predicted both 3-month depression (B = .968, $p < .001$, $R^2 = .71$) and anxiety (B = .746, $p < .01$, $R^2 = .41$), even after controlling for infant health severity. However, none of the baseline mental health variables predicted PTSD symptoms at 3 months cGA. Findings highlight the persistence of early postpartum depression, above infant health severity alone. The early NICU period offers a key window to strengthen parent-infant engagement. Future research should track distress trajectories and test targeted psychological interventions for this high-risk group.

**25. Sex differences in the role of parent self-regulation on parent-child physiological synchrony:
A scoping review**

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Parent-child physiological synchrony – the intricate ‘dance’ of internal states between parents and children during social interactions – contributes to children’s self-regulation (SR), but it is not uniformly beneficial. Parents’ SR may be one factor shaping synchrony and child outcomes. Additionally, recent parenting research has highlighted that mothers and fathers may play distinct and/or nuanced roles in child development. The present synthesis from the authors scoping review extends original findings by examining this relationship across mother- and father-child dyads. The search was conducted across CINAHL, PsycINFO, Academic Search Complete, Psychology and Behavioral Sciences Collection, PubMed, and Web of Science. Fifteen peer-reviewed studies met inclusion criteria. Studies with both mother-and father representation was limited (n=9 mixed sex studies). Of those studies, 53%-94% of the samples were mothers and only two studies explicitly examined sex differences within their sample. Although limited, there is preliminary evidence that mother and father SR have distinct influences on physiological synchrony. Studies tend to focus on mothers, hindering our ability to clearly understand the sex differences in parent-child physiological synchrony. Without examining both parents (or all primary caregivers), we cannot fully understand the etiology of child regulatory development. Given the preliminary findings of sex variations in synchrony, future research should prioritize the inclusion of fathers (or other influential primary caregivers) and explicitly test sex differences to clarify maternal and paternal regulatory roles in the intergenerational transmission of SR.

26. Trauma Symptom Severity and Subjective Well-being in Caregivers of Children with Medically Complex Needs

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Children with multiple chronic health conditions require specialized care, placing increased demands on caregivers. Caregivers of medically complex children often report elevated trauma symptoms. This study aimed to (1) describe the relationship between trauma symptom severity and subjective well-being in this population, and (2) examine potential mediators of this relationship. Caregivers (N = 125, 52% White, 28% Black, 91% female) were recruited from an integrated care clinic in the Southeastern US. Participants completed the Structured Trauma-Related Experiences and Symptoms Screener (Grasso et al., 2018), Satisfaction with Life Scale (Diener et al., 1985), Coping Flexibility Scale (Kato, 2012), Brief Resilience Scale (Smith et al., 2008), and PROMIS Social Support Measure (Hahn et al., 2014). The total effect of trauma symptom severity on subjective well-being was significant and negative ($c = -0.33, p < .01$), indicating that higher levels of trauma symptom severity were associated with lower subjective well-being. When accounting for the mediating variables, the direct effect remained significant but was reduced in magnitude ($c' = -0.18, p < .05$), suggesting partial mediation. Bootstrap analyses revealed that resilience (point estimate = $-.05$, [95% CI: $-.01, -.11$]) and informational support (point estimate = $-.12$, [95% CI: $-.02, -.25$]) were significant mediators. Findings highlight resilience and informational support as mediators of the relationship between caregiver trauma symptom severity and well-being. Interventions that enhance resilience and access to informational support may help buffer the negative impact of trauma. Limitations include the cross-sectional design and single-source measurement. Future research should investigate interventions targeting these factors.

27. Postpartum Mental Health and Wellness in African American Women

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This research is a subset of Dr. Sara Moyer's research with Postpartum Mental Health, and specifically hones in on how it affects African American Women. When conducting literature reviews, I found that the effects of postpartum mental health in both African American women and White Women are equal as far as experiencing it, but research has shown that African American Women are far more less likely to seek help and receive care for it. The goal of this research was to figure out what was causing that gap in the statistics, and to figure out how it could possibly be addressed in the future and better reflect with statistics. I conducted qualitative research that consisted of literature reviews and transcribing virtual recorded interviews with participants of Dr. Sara Moyer's research. The most important key findings of this research highlighted three things that contribute to these high rates and gaps in the statistics: historical trauma, superwoman phenomenon, and representation and shared identity. I plan to continue to further this research with Dr. Sara Moyer through the Spring 2026 semester. After that, I plan to attend graduate school to become a Women's Health Nurse Practitioner and elaborate even further on this research so that it can augment my success and impact in the role of a Women's Health Nurse Practitioner.

28. Mental Health Perspectives of Parents of Children with Medical Complexity

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Caregivers have distinct and individualized experiences of caring for children with medical complexities due to the chronic and complex nature of their needs. It's critical for providers to understand caregiver mental health to meet their unique needs. Further, recognizing the sociocultural and systemic factors leading to the often-unequal distribution of care is crucial. These factors can lead to differing caregiving responsibilities amongst caregivers on the basis of their gender. Consequently, caregivers have highly individualized experiences impacting their mental health. To explore how caregiver experiences within the medical system impact mental health, a diverse group of caregivers with children being treated from a trauma level one hospital in the southeast with a complex care clinic were interviewed utilizing a semi structured interview protocol. In total, 15 interviews were conducted over Zoom between October 2024 and March 2025, each lasting 20-45 minutes, with 93% of caregivers identifying as female. The all-encompassing theme identified in this study was, "Mental health is everything", which includes the subthemes of family system impact, caregiver burden, healthcare barriers and facilitators, and adaptation. These subthemes have a critical impact on caregivers, their mental health, and experiences with caregiving. The results of this study indicate the need to support caregivers of children with medical complexities while maintaining a focus on inclusion and accessibility. Understanding the needs and experiences of caregivers of children with medical complexities, especially those who may also face societal and systemic barriers such as women and gender diverse caregivers, is critical to best supporting this population.

29. Maternal Healthcare Access in Displacement Settings: Comparing Refugees and Host Communities in South Sudan

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Forced displacement disrupts maternal health services and strains fragile health systems in host countries. In South Sudan, where maternal mortality remains among the highest globally and displacement is widespread, evidence on maternal care access and its predictors among refugee and host women is limited. This study examines disparities in antenatal, postnatal care and facility delivery among displaced and host women. We analyzed data from 2023 South Sudan Forced Displacement Survey on 1,430 women who gave birth in the previous two years: 34.5% host community women, 54.3% northern refugees, and 11.2% southern refugees. Outcomes were four or more antenatal visits ($\geq 4\text{ANC}$), delivery at a health facility, and three or more postnatal visits ($\geq 3\text{PNC}$). Linear probability models assessed associations between population group and each outcome, adjusting for multilevel covariates and accounting for survey design and weights. Northern refugees had a higher probability of completing $\geq 4\text{ANC}$ ($\beta = 0.14$, $p = 0.08$) and facility delivery ($\beta = 0.16$, $p = 0.03$) than host women. Northern refugees had a lower probability of completing $\geq 3\text{PNC}$ visits ($\beta = -0.29$, $p = 0.02$), with a similar but non-significant trend among southern refugees. $\geq 4\text{ANC}$ attendance predicted facility delivery, and facility delivery predicted $\geq 3\text{PNC}$ use, though these associations varied by population. Refugee women, especially in the North, had higher antenatal and facility delivery use than host women, but postnatal care remained low, highlighting gaps in continuity of care. Host women accessed services above national averages, suggesting spillover benefits from humanitarian programs.

30. When data fail women: Hidden burdens of refugee resettlement among minoritized women

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Refugee resettlement research often treats gender as a covariate rather than a structuring force, obscuring how women's barriers are shaped and measured. Using federal resettlement data, this study examines whether predictors of resettlement service barriers differ by gender in both type and predictive performance, and what those differences reveal about how women's experiences are captured. We analyzed pooled data from the 2020–2022 Annual Survey of Refugees (N = 4,518), a federally administered dataset. Random Forest regression was used to model nonlinear and interactive relationships across demographic, socioeconomic, psychosocial, and health domains. Model performance (R^2) and permutation-based variable importance (%IncMSE) were compared across sex-stratified and intersectional subgroup models. Overall model performance was modest ($R^2 = 0.23$), despite improved fit over linear models. Predictive accuracy differed by sex: models explained 24.3% of variance for men and 20.0% for women. For men, household size dominated (%IncMSE = 36.4), whereas for women, region of origin (23.6), discrimination (20.2), and mental health (14.8) were more influential, with household size markedly weaker (6.2). Intersectional analyses showed further instability, with several female subgroups demonstrating weak or even negative model fit, indicating poor alignment between measured variables and lived experiences. Lower predictive performance among minoritized women reflects not fewer barriers, but limits in federal resettlement data. Current measures privilege economic and demographic indicators while under capturing relational, psychosocial, and gendered constraints. Advancing refugee women's health equity requires resettlement metrics that better reflect the conditions shaping access and well-being.

31. Cultivating Cultural Humility Through Community-Engaged Global Learning: A Pre/Post Thematic Analysis

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The Institute for Women's Health Women's Health and Healing in Guatemala trip is a community-engaged global learning experience designed to deepen understanding of women's health, Indigenous healing practices, and ethical cross-cultural partnership. Through engagement with traditional midwives, community leaders, and community-based health initiatives in Guatemala's Western Highlands, participants are invited to reflect on culture, health, and how these experiences shape their future professional practice, including healthcare, advocacy, education, and other community-facing roles. This project explored how participation in the program influenced participant understanding of cultural humility in healthcare through a pre/post thematic analysis of student reflections. Responses from 14 participants were reviewed to identify recurring ideas, patterns, and shifts in understanding before and after the trip experience.

"Pre-trip responses suggested that participants largely understood cultural humility as respecting and acknowledging cultural differences in healthcare settings. Additional themes included individualized care, patient comfort, communication awareness, and limited recognition of traditional or alternative healing practices. Some responses also reflected uncertainty or developing understanding. Post-trip responses demonstrated a broader and more reflective understanding of cultural humility. Participants continued to emphasize respect for cultural differences, but their reflections suggested deeper appreciation for listening, asking rather than assuming, adapting care to patient context, and recognizing the legitimacy of traditional and community-based healing practices. Post-trip responses also reflected stronger critical awareness of the limitations of dominant healthcare systems and the importance of humility, reciprocity, and relationship-centered care. Findings suggest that immersive, community-engaged global learning may help participants move from a general understanding of respect for difference toward a more nuanced, reflective, and practice-based understanding of cultural humility. These experiences may support interdisciplinary education by fostering greater openness to Indigenous knowledge, relational communication, and ethical engagement across cultural contexts.

32. Heart Rate Variability Responses to Racial Discrimination: Intergenerational Patterns in African American Mother–Youth Dyads

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Within families, women—particularly mothers—often carry disproportionate responsibility for emotion regulation and socialization, including preparing youth to navigate discrimination. Recent work has highlighted racial variability in physiological regulation (PR) and its relationship with health disparities. However, few studies have considered whether this regulatory variability occurs for minority youth, and how it may relate to maternal regulation. Therefore, the present study explores the PR of minority youth and their similarity to maternal PR. African American youth and their mothers ($N = 10$; $M_{age} = 11.9$) independently watched a discrimination video while heart rate variability (HRV) was recorded. HRV was also recorded during an aquatic video before and after the stressor. HRV was measured as RMSSD, an index of PR, and reactivity and recovery scores were calculated by subtracting stressor and recovery RMSSD from baseline, respectively. Most mothers (60%) and youth (60%) exhibited increasing HRV during discrimination, suggesting better PR. Mother and youth RMSSD were associated during the discrimination video ($r = 0.74$; $p=0.015$), but not during recovery ($p=0.448$). During recovery, most youth showed decreased HRV ($M = -8.7$; $SD=26.7$), while most mothers showed increased HRV ($M=7.4$; $SD=33.86$). Counter to what would be expected, both mothers and youth showed better physiological responses during discrimination. These matching reactivity patterns may indicate an intergenerational transmission of culturally specific regulatory strategies. Future research is needed to better understand the how shared patterns of physiological regulation within families may contribute to the transmission of health disparities.

33. Integrated behavioral health outcomes in a pediatric complex care

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Children with Medical Complexity (CMC) are children with chronic multi-system medical conditions requiring them to be under care of multiple specialists. CMC often have some type of medical equipment dependency such as G-tube, tracheostomy, or respirator. The family members and caregivers of CMC often live with untreated mental illness due to experiencing medical trauma, anticipatory grief, and a heightened sense of anxiety and depression. Further issues like financial stress, caregiver burnout, and isolation lead this population to an overall decrease in well-being. An integrated primary care model seeks to expand mental health access and support to family members of CMC. Incorporating behavioral health providers into the primary care setting allows for easy and fast access into services. Data will be gathered within the next 18 months and will be presented at a later time. This poster will overview: 1) a current delivery model installed into the primary care clinic in order to maximize quality of life as well as alleviate mental health symptoms, and 2) an outcome assessment model designed to track the efficacy of delivered interventions over time.

34. Health-Related Quality of Life in Middle-Aged and Older Women: Considerations for Lifestyle Factors and Concussion History

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Women are at greater risk for neurological disease and may experience increased symptom burden and reduced quality of life (QoL) following neurological injury. The Lifestyle for Brain Health (LIBRA) score quantifies modifiable lifestyle factors potentially linked to cognitive and functional decline, but its relationship with health-related quality of life (HRQoL) in women is not well understood. Purpose: Examine the association between LIBRA and HRQoL in mature women. Forty-two women (62.2 ± 6.9 years; concussion history: range = 0-8, 28 yes/14 no) completed questionnaires including demographics, health history, and patient-reported outcomes: Mental (MCS-12) and Physical (PCS-12) Component Scores, Satisfaction with Life Scale (SFWLS), and Rivermead Post-Concussion Symptoms (RPSQ). LIBRA scores were calculated as in prior studies, with higher scores indicating greater risk (range = -5.9 - 14.6). Linear regressions assessed the associations between LIBRA scores and concussion history with each outcome. Higher (worse) LIBRA scores were associated with worse MCS-12 ($R^2 = 0.39$, $\beta = -1.95$, $p < 0.001$), PCS-12 ($R^2 = 0.14$, $\beta = -1.15$, $p = 0.018$), and RPSQ ($R^2 = 0.23$, $\beta = 0.82$, $p = 0.002$). LIBRA was not associated with SFWLS. Concussion history was associated with worse PCS-12 ($R^2 = 0.24$, $\beta = -1.85$, $p = 0.001$) and RPSQ ($R^2 = 0.11$, $\beta = 0.68$, $p = 0.041$) only. LIBRA was associated with worse QoL and symptom burden, whereas concussion history alone showed more limited associations. These findings suggest that broader health profiles may better explain long-term outcomes in women and represent important targets for intervention.

35. Urge Incontinence and Fall Risk in Older Women: A Real-World Cohort Study Using TnNetX

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Falls are a major issue for older women, and we still do not fully understand all the drivers behind them. Urge incontinence is very common in this population and may play a bigger role than we think. The constant need to rush, especially at night, can create situations where balance and safety are compromised. Despite this, the connection between urinary symptoms and falls is often overlooked. A retrospective cohort study was conducted using the VCU TriNetX database from 2020 to 2025. Women aged 60 to 89 years with urge incontinence were identified and compared with women without pelvic floor disorders. The primary outcome was incident falls. Propensity score matching was performed to balance baseline characteristics. Risk analysis, Kaplan Meier survival analysis, and Cox proportional hazards models were used to estimate associations, adjusting for demographic and clinical covariates. A total of 3,790 women with urge incontinence and 121,380 controls were identified. After propensity score matching, 3,580 women remained in each cohort with well-balanced baseline characteristics. Falls occurred in 430 women (12.0%) in the urge incontinence group compared with 220 women (6.1%) in controls. Urge incontinence was associated with a significantly increased risk of falls, with a risk ratio of 1.96 (95% confidence interval 1.67 to 2.28), risk difference of 5.9% (95% confidence interval 4.5% to 7.2%), and odds ratio of 2.09 (95% confidence interval 1.76 to 2.47) ($p < 0.001$). Kaplan Meier analysis demonstrated reduced fall free survival in the urge incontinence group (76.4% vs 82.4%), with a significant difference between groups (log rank $\chi^2 = 20.38$, $p < 0.001$). In Cox proportional hazards analysis, urge incontinence was independently associated with increased fall risk (hazard ratio 1.45, 95% confidence interval 1.24 to 1.71, $p < 0.001$). Among covariates, increasing age (hazard ratio 1.06 per year, $p < 0.001$), type 2 diabetes mellitus (hazard ratio 1.47, $p < 0.001$), obesity (hazard ratio 1.20, $p = 0.007$), depressive disorders (hazard ratio 1.71, $p < 0.001$), and antidepressant use (hazard ratio 1.34, $p < 0.001$) were significantly associated with increased fall risk.

Demographic Characteristics: A total of 3,790 women with urge incontinence and 121,280 controls without pelvic floor disorders were included in the analysis. The mean age was higher in the urge incontinence group compared with controls (73.3 ± 7.86 vs 71.6 ± 7.78 years). Similarly, the mean age at index was greater among women with urge incontinence (69.9 ± 8.03 years) compared with controls (63.4 ± 9.21 years). All participants were female. The majority of participants in both groups were not Hispanic or Latino, with a higher proportion observed in the urge incontinence group (95.25% vs 90.13%), while unknown ethnicity was more common in controls (7.71% vs 2.90%). Hispanic or Latino individuals represented a small proportion in both cohorts (2.37% vs 2.16%). In terms of race, White individuals comprised the largest proportion in both groups (61.47% in the urge incontinence group vs 57.92% in controls), followed by Black or African American individuals (31.92% vs 31.36%). Smaller proportions were observed for other racial categories, including Asian, American Indian or Alaska Native, and Native Hawaiian or other Pacific Islander populations. Unknown race was more frequent in the control group compared with the urge incontinence group (5.81% vs 2.63%).

Cohort Characteristics: A total of 3,790 women with urge incontinence and 121,380 controls without pelvic floor disorders were identified. After propensity score matching, 3,580 women remained in each cohort. Baseline characteristics were well balanced between groups, with no meaningful differences in age, race, or other covariates after matching.

Risk of Falls: During follow up, falls occurred in 430 women (12.0%) in the urge incontinence group compared with 220 women (6.1%) in the control group. Urge incontinence was associated with a significantly increased risk of falls, with a risk ratio of 1.96 (95% confidence interval 1.67 to 2.28) and a risk difference of 5.9% (95% confidence interval 4.5% to 7.2%, $p < 0.001$). The odds ratio for falls was 2.09 (95%

confidence interval 1.76 to 2.47). Survival Analysis: Kaplan Meier analysis demonstrated reduced fall free survival among women with urge incontinence compared with controls. The probability of remaining fall free at the end of follow up was 76.4% in the urge incontinence group compared with 82.4% in the control group. The difference between groups was statistically significant (log rank $\chi^2 = 20.38$, $p < 0.001$). Cox Proportional Hazards Analysis: In Cox proportional hazards analysis, urge incontinence was independently associated with an increased hazard of falls (hazard ratio 1.45, 95% confidence interval 1.24 to 1.71, $p < 0.001$). There was no evidence of violation of the proportional hazards assumption ($\chi^2 = 1.74$, $p = 0.187$). In the multivariable model, several covariates were also significantly associated with fall risk. Increasing age was associated with higher risk (hazard ratio 1.06 per year, 95% confidence interval 1.056 to 1.061, $p < 0.001$). Type 2 diabetes mellitus (hazard ratio 1.47, 95% confidence interval 1.32 to 1.64, $p < 0.001$) and obesity (hazard ratio 1.20, 95% confidence interval 1.05 to 1.36, $p = 0.007$) were independently associated with increased fall risk. Depressive disorders demonstrated strong associations, including depressive episode (hazard ratio 1.71, 95% confidence interval 1.50 to 1.96, $p < 0.001$) and recurrent major depressive disorder (hazard ratio 1.45, 95% confidence interval 1.15 to 1.83, $p = 0.002$). Antidepressant use was also associated with increased fall risk (hazard ratio 1.34, 95% confidence interval 1.16 to 1.55, $p < 0.001$). Other variables, including Parkinson disease (hazard ratio 0.99, $p = 0.949$), Alzheimer disease (hazard ratio 1.50, $p = 0.202$), muscle weakness (hazard ratio 1.23, $p = 0.076$), and sleep disorders (hazard ratio 1.06, $p = 0.445$), were not statistically significant in the adjusted model. Urge incontinence is not just a quality-of-life issue. It is strongly associated with fall risk in older women and should be considered an important component of fall risk assessment. These findings highlight the need to incorporate urinary symptoms into fall prevention strategies. In our setting, these results directly inform ongoing efforts within the Safe Steps Forward program, a targeted intervention designed to reduce fall risk among older adults through early identification, patient education, and behavioral strategies. Urinary symptom screening is currently included as part of Safe Steps Forward pre- and post-consumer survey. Including interventions for those identified with these symptoms during screening may further strengthen its impact and improve patient outcomes.

36. Dermatologic and Psychological Predictors of Suicidal Outcomes in Breast Cancer Patients: The Impact of Chemotherapy

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Suicidal outcomes among breast cancer patients represent a critical but underrecognized public health concern. While chemotherapy related toxicity and psychological distress have been implicated, the role of dermatologic manifestations as potential clinical indicators of suicide risk remains poorly understood. This study aimed to evaluate the association between chemotherapy exposure, dermatologic conditions, psychological disorders, and suicidal outcomes in a large real-world cohort of breast cancer patients. We conducted a retrospective cohort study using the TriNetX global federated health research network, including 1,032,295 adult breast cancer patients from 65 healthcare organizations between 2015 and 2025. Patients were stratified into those receiving chemotherapy (n = 490012) and those without chemotherapy (n = 542283). The primary outcomes were suicidal ideation and suicide attempt identified using ICD 10 codes. Multivariable Cox proportional hazards models were used to estimate adjusted hazard ratios for dermatologic and psychological conditions while controlling for cohort membership and demographic factors. Kaplan Meier analyses and comparative risk estimates were also performed. Patients receiving chemotherapy demonstrated a higher burden of suicidal outcomes compared to those without chemotherapy. The incidence proportion of suicidal outcomes was 0.007348 in the chemotherapy group versus 0.004322 in the non-chemotherapy group. Chemotherapy exposure was associated with increased risk of suicidal ideation and suicide attempt, with significantly lower risk observed in patients not receiving chemotherapy. In adjusted analyses, psychological conditions showed the strongest associations with suicidal outcomes. Depressive disorders were associated with a nearly 5-fold increased hazard (HR 4.977, 95% CI 4.575 to 5.416, p < 0.001), followed by anxiety disorders (HR 2.365, 95% CI 2.169 to 2.578, p < 0.001) and acute stress reactions (HR 2.155, 95% CI 1.635 to 2.840, p < 0.001). Dermatologic conditions were also independently associated with increased risk, including xerosis cutis (HR 2.334, 95% CI 1.830 to 2.976, p < 0.001), acne (HR 2.060, 95% CI 1.580 to 2.686, p < 0.001), nonscarring hair loss (HR 1.743, 95% CI 1.375 to 2.209, p < 0.001), and recurrent oral aphthae (HR 1.831, 95% CI 1.191 to 2.816, p = 0.006). Patients not receiving chemotherapy had a significantly lower hazard of suicidal outcomes (HR 0.687, 95% CI 0.640 to 0.737, p < 0.001). In this large real-world study, both psychological and dermatologic conditions were significant predictors of suicidal outcomes among breast cancer patients, with psychological disorders exerting the strongest effects. Chemotherapy exposure was associated with increased suicide risk, highlighting a vulnerable population requiring targeted monitoring. Dermatologic manifestations may serve as accessible clinical markers of distress and risk stratification. Integrating mental health screening and dermatologic assessment into oncology care pathways may improve early identification of high-risk patients and inform prevention strategies

37. Pubertal AGE exposure reprograms mammary fibroblasts through RAGE-MYC signaling: Implications for Women's Breast Cancer Risk

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Breast cancer is the second leading cause of cancer-related mortality among women, with lifestyle factors playing a critical role in prevention. Advanced Glycation End-products (AGEs), irreversible compounds formed through non-enzymatic reactions, represent an underappreciated dietary risk factor with direct relevance to women's health across the lifespan. Epidemiological evidence links elevated AGE consumption to increased breast cancer incidence and poorer outcomes, findings further validated using serum samples from women with breast cancer, underscoring the urgent need to mechanistically understand how these compounds contribute to disease progression. AGEs activate the Receptor for Advanced Glycation End-products (RAGE), triggering chronic inflammation and oxidative stress that promote cancer progression. Using a dietary-AGE mouse model designed to mimic human AGE consumption patterns, we demonstrated that mice fed a high-AGE diet during puberty exhibited disrupted mammary gland development, hyperproliferative lesions, and increased stromal recruitment, highlighting the unique susceptibility of the pubertal breast to dietary exposures with lasting consequences for women's breast cancer risk. Mammary fibroblasts isolated from AGE-exposed tissue displayed an activated phenotype with enhanced epithelial migration observed in co-culture assays through RAGE-dependent mechanisms. We identified MYC as a downstream AGE-RAGE effector required for AGE-mediated epithelial migration and invasion but not fibroblast activation itself. Functional in vitro assays confirmed that high-AGE fibroblasts promote epithelial cell proliferation, consistent with in vivo findings demonstrating AGE-promoted tumor growth. Global transcriptomic analysis revealed these fibroblasts exhibit a human matrix cancer-associated fibroblast phenotype. Ongoing gene set enrichment analyses will identify AGE-specific fibroblast signatures for validation as potential clinical biomarkers. Using fibroblast-specific conditional RAGE knockout mice, we are delineating cell-autonomous versus systemic AGE-RAGE signaling contributions to pro-tumorigenic stromal reprogramming. Collectively, informing dietary intervention strategies targeting pubertal AGE consumption to reduce women's lifetime breast cancer risk.

38. High-Risk HPV Genotype Distribution and Associated Risk Factors Among Women Aged 30–49 Years in Nyeri County, Kenya

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Cervical cancer remains a major public health concern, particularly in low- and middle-income countries where access to screening and prevention services is limited. This study examined the prevalence of high-risk human papillomavirus (HPV) genotypes and associated risk factors among women aged 30–49 years attending selected health facilities in Nyeri County, Kenya. A descriptive cross-sectional study was conducted among 421 purposively sampled women aged 30–49 years attending four health facilities in Nyeri County. Women with a prior history of cervical cancer, hysterectomy, or HPV vaccination were excluded. Data on sociodemographic, reproductive, and behavioral characteristics were collected using structured questionnaires. Participants self-collected cervical samples, which were tested for HPV DNA using the Atila Biosystems platform. HPV results were categorized as negative, HPV16, HPV18, or other high-risk types. Data were analyzed using SPSS version 25, with descriptive statistics, chi-square tests, and multivariate logistic regression applied at a significance level of $p < 0.05$. Among the 421 participants, the mean age was 36.5 years, and 37.8% tested positive for HPV. HPV16 (49.7%) and HPV18 (28.9%) were the most prevalent genotypes. Most participants were aged 30–39 years, married, self-employed, and had low educational attainment. Significant associations were found between HPV infection and age, education, marital status, income, parity, and residence. Independent predictors of infection included younger age, low education, higher parity, marital status, rural residence, and shorter distance to health facilities. The study found a high prevalence of HPV infection, with HPV16 and HPV18 predominating. Sociodemographic factors significantly influenced infection risk. These findings underscore the need for targeted interventions, including expanded screening, nonavalent vaccination, and tailored health education, to strengthen cervical cancer prevention efforts in Nyeri County.

39. Examining Potential Influence of Social Bonding on OXTR Expression in Non-Reproductive Tissues of *Peromyscus Californicus*

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Recent research on oxytocin has pointed toward conflicting roles for the neuropeptide in cancer progression, suggesting both carcinogenic and anticarcinogenic effects. Oxytocin appears to have opposite effects on cancer progression in different peripheral tissues, including lung, breast, and esophageal cancer. In relation to oxytocin's role in social behavior, a possible link to cancer pathology has been suggested by a recent study on pair bonding in California mice, which found that pair bonding was linked to decreased tumorigenesis and delayed lung cancer progression (Naderi et al., 2021). "Thus, this study aimed to determine whether pair bonding alters oxytocin receptor (*Oxtr*) gene expression by comparing male and female California mice housed in different pair bond conditions, across tissues known to be responsive to oxytocin signaling, including the esophagus, heart, lungs, and hypothalamus. Adult mice were housed either with an opposite-sex partner for 10 days followed by separation and individual housing for 10 days (pair-broken), continuously paired for 20 days (paired), or individually housed for the full 20-day period (single-housed). Tissues were collected and RNA was extracted. Relative gene expression was assessed by quantitative PCR targeting *Oxtr*, with *Cox1* and *Actb* used as reference genes. Differences in expression were assessed within sex via two-way ANOVAs with fixed effects for tissue and housing condition. Results will demonstrate the effect of pair bonding in California Mice on *Oxtr* expression across four tissue types. This investigation into oxytocin receptor expression in peripheral tissues will support important insights about the potential for social bonds to influence physiology.

40. Sex Differences and the Impact of Patient Education on Depression Risk Among Head & Neck Cancer Patients

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Depression is a major contributor to morbidity among cancer patients. While sex disparities in psychological outcomes are recognized, the role of patient counseling in influencing depression risk remains poorly defined. This study aimed to evaluate sex differences and the differential association between patient counseling and other factors with depression risk using real-world data. A retrospective cohort study was conducted using the TriNetX research network, including data from up to 112 healthcare organizations. Head and neck cancer patients aged 18 to 89 years between 2000 and 2025 were included. A total of 100,221 patients were analyzed. Baseline characteristics were balanced using propensity score matching. Risk estimates, Kaplan-Meier survival analysis, and Cox proportional hazards models were used to evaluate predictors of depression beginning 14 days after diagnosis through 5 years of follow-up. Counseling was defined using education and counseling-related procedure and diagnosis codes. In the propensity-matched depression cohort, females had a higher burden of depression than males. All depression occurred in 2.7% of females versus 1.6% of males (risk ratio 1.718, 95% CI 1.526 to 1.934; hazard ratio 1.629, 95% CI 1.445-1.837; $p < 0.001$). Depression episodes were also more frequent in females (2.6% vs 1.4%; risk ratio 1.801, 95% CI 1.591-2.039; hazard ratio 1.707, 95% CI 1.506-1.935; $p < 0.001$), and recurrent depression was higher as well (0.5% vs 0.3%; risk ratio 1.453, 95% CI 1.101-1.918; $p = 0.008$). In the counseling analysis, documented counseling was less common among females than males (1.1% vs 2.1%; hazard ratio 0.521, 95% CI 0.459-0.592; $p < 0.001$). Among patients who received counseling, females still had higher depression risk than males (5.5% vs 2.8%; hazard ratio 1.895, 95% CI 1.108-3.242; $p = 0.030$). Female oral cancer patients experienced a consistently higher burden of depression than males, including among those who received counseling. At the same time, counseling was documented less often in females, suggesting a sex-based disparity in supportive care delivery. These findings support the need for more consistent, tailored, and sex-responsive counseling strategies in oral cancer care.

41. Social Isolation, Stress Appraisal, and Psychological Outcomes in Women with Multiple Sclerosis: A Mediation Analysis

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Women with multiple sclerosis (MS) experience heightened psychosocial vulnerability, including increased social isolation and psychological distress. Guided by the transactional model of stress and coping, this study examined whether stress appraisal processes help explain the relationship between social isolation and psychological outcomes among women with MS. Specifically, challenge, threat, and centrality appraisals were tested as mediators linking social isolation to two outcomes: perceived stress and subjective well-being. Participants were recruited through the National Multiple Sclerosis Society, and the final sample included 430 women diagnosed with MS. Pearson correlation analyses were conducted to examine relationships among variables. Parallel multiple mediation analyses were then performed to test indirect pathways between social isolation and the two psychological outcomes. Social isolation was significantly associated with higher perceived stress and lower subjective well-being. Mediation analyses revealed distinct appraisal pathways. The relationship between social isolation and perceived stress was partially mediated by higher threat appraisal and lower challenge appraisal. In contrast, the association between social isolation and subjective well-being was mediated only by challenge appraisal. Centrality appraisal was not a significant mediator in either model. These findings suggest that psychological distress and well-being among women with MS are shaped by different cognitive appraisal pathways. Social isolation contributes to increased perceived stress through heightened threat appraisal and reduced challenge appraisal, whereas subjective well-being appears to be primarily influenced by challenge appraisal. Interventions that address social isolation while strengthening challenge-oriented appraisal may support psychological adjustment and well-being among women living with MS.

42. Postmenopausal Women Exhibit Reduced Cardiac Output and Elevated Peripheral Resistance During Isometric Exercise

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Menopause is associated with alterations in autonomic and cardiovascular regulation that may influence hemodynamic responses to exercise. The exercise pressor reflex (EPR), activated during isometric contractions, plays a key role in mediating increases in blood pressure through coordinated adjustments in cardiac output (CO) and total peripheral resistance (TPR). However, it remains unclear whether menopause alters the relative contributions of central and peripheral mechanisms underlying these responses. This study compared autonomic and hemodynamic responses to isometric exercise between premenopausal (pMW) and postmenopausal women (PMW). Participants performed a standardized isometric contraction to evoke EPR activation. Mean arterial pressure (MAP), CO, and TPR were assessed at rest and during exercise. MAP responses to isometric exercise were not different between groups, indicating a preserved pressor response in PMW. However, the underlying hemodynamic mechanisms differed significantly. PMW exhibited a significantly lower increase in CO compared to pMW ($p < 0.05$), accompanied by a significantly greater increase in TPR ($p < 0.05$). These findings suggest a shift toward greater reliance on peripheral vasoconstriction rather than central cardiac output to achieve comparable elevations in arterial pressure. This altered hemodynamic profile in PMW may reflect menopause-associated changes in autonomic regulation, including augmented sympathetic vasoconstrictor activity and/or reduced cardiac responsiveness during EPR activation. The reliance on increased TPR to maintain MAP may have important implications for vascular health, as repeated exposure to heightened vasoconstriction during daily physical activities could contribute to increased cardiovascular risk. In conclusion, while the magnitude of the pressor response to isometric exercise is preserved following menopause, the underlying mechanisms are significantly altered, with postmenopausal women demonstrating a shift toward peripheral vascular control. These findings provide insight into menopause-related changes in autonomic cardiovascular regulation during exercise.

43. Cardiovascular health over the menopause transition and declines in subjective cognitive function later in life: The Study of Women's Health Across the Nation (SWAN)

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Over the menopause transition (MT), women experience accelerated deterioration in cardiovascular health (CVH), a critical modifiable risk factor for Alzheimer's disease. Yet, limited research characterized the link between CVH assessed by Life Essential 8 (LE8, the sum of health behavior and factors sub-scores) over the MT and future subjective cognitive function measured by Ecog-12. We included 1140 SWAN participants without a history of stroke who had 3 repeated LE8 measures corresponding to pre-, peri-, and postmenopause stages and 1 to 2 subsequent Ecog-12. CVH status at each visit was classified as low (<50), moderate (50-79), or ideal (≥ 80) based on the total LE8 score. Changes in CVH were defined into 5 classifications: low remains low (Low), moderate remains moderate (Moderate), ideal remains ideal (Ideal), Improving, or Worsening. Multivariable linear mixed models were used to assess the associations of changes in CVH status and the two LE8 sub-scores over the MT with longitudinal Ecog-12. Women were aged 55.5 ± 2.6 , 65.7 ± 2.7 and 72.2 ± 2.7 years at the third LE8 (analysis baseline), and first and second Ecog-12 measures, respectively. Women with Low, Worsening, and Moderate CVH status over the MT had 11%, 7%, and 5% greater declines in subjective cognition than women with Ideal CVH, respectively. Better premenopausal health behavior and greater improvements in it from pre- to perimenopause were associated with less later declines in subjective cognition. Maintaining good CVH over the MT and adopting healthy behaviors in the transition from pre- to perimenopause were associated with less future declines in cognitive function.

44. Exploring the Associations of Age, Menstrual Status, and Head Injury History with Neurobehavioral, Mental Health, and Cognitive Symptoms in Young and Middle-Aged Women

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Little is known about how to parse out the overlapping neurobehavioral, mental health, and cognitive symptoms related to age, menstrual status, and head injury history; however, this knowledge will help tailor treatment pathways, particularly for women in midlife. Participants in this electronic survey study self-identified as female (n=264; aged 38.2±11.0 years). Age groups were defined as younger (<45 years) or middle-aged (45-59 years), and participants self-reported whether it had been ≥12 months since their last menstrual cycle as a surrogate for menopausal status. Additionally, self-reported lifetime head injury history was dichotomized as non-repetitive or repetitive. Outcome measures were neurobehavioral (Neurobehavioral Symptom Inventory sum score), mental health (PROMIS-29 depression and anxiety T-scores), and cognitive (TBI-QoL general cognition T-score) symptoms. To explore the effects of age, menstrual status, and head injury history, linear regression models were fit for each outcome while covarying for education attainment. We calculated unstandardized beta values and 95% CIs for each predictor. Middle-aged participants reported lower anxiety symptoms than younger participants (beta[95%CI]= -2.73[-5.44,-0.01]). Participants with ≥12 months since their last menstrual cycle reported higher neurobehavioral (3.68[0.09,7.62]) and depression symptoms (3.27[0.47,6.08]) than those with menstrual cycles within 12 months. Repetitive head injury was associated with worse cognitive (-2.87[-5.58,-0.16]) symptoms. Age, menstrual status, and repetitive head injury history were each associated with different symptom domains in this study. Symptom management should be personalized; however, age, menstrual status, and head injury history may relate to different symptom profiles, warranting deeper study, particularly among women in young adulthood and midlife.

45. Sleep Efficiency Irregularity Is Associated with Oxidative Stress and Impaired Baroreflex Function in Young Women with PTSD

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INTRODUCTION: Post-traumatic stress disorder (PTSD) is associated with elevated cardiovascular disease (CVD) risk, potentially mediated by persistent sleep disturbances and sympathetic nervous system hyperarousal. Women are disproportionately affected by PTSD and may exhibit sex-specific physiological vulnerabilities that contribute to early CVD risk. This study aimed to determine which aspects of sleep disturbance are associated with early markers of cardiovascular dysfunction in young women with PTSD. **METHODS:** Thirty-one young adult women with PTSD were assessed using the PTSD Checklist for DSM-5 (PCL-5). Sleep was objectively measured over seven consecutive nights using wrist actigraphy to quantify total sleep time (TST), sleep efficiency (SE), and night-to-night SE regularity. Oxidative stress was evaluated via whole blood superoxide production, and cardiovagal baroreflex sensitivity (cBRS) was assessed using the Valsalva maneuver to determine acute blood pressure control. Resting blood pressure and heart rate were also measured. **RESULTS:** Average sleep quality measures (TST and SE) were not significantly associated with oxidative stress or cBRS. In contrast, SE regularity was significantly correlated with both oxidative stress ($r = 0.44$, $p = 0.02$) and cBRS ($r = -0.57$, $p < 0.01$). **DISCUSSION:** These findings suggest that irregular SE, rather than average sleep duration or quality, is strongly linked to early physiological markers of CVD risk in women with PTSD. Studying female participants is critical, as sex-specific patterns of sleep disruption and autonomic dysregulation may increase cardiovascular vulnerability. Interventions targeting SE regularity may represent a promising strategy to reduce early CVD risk in this population.

46. Sex-Specific Associations of hs-CRP and LDL-C with Stroke and Cardiovascular Outcomes Among Statin Users in the REGARDS Study

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Sex differences in cardiovascular risk are well established, and both hs-CRP and LDL-C are important biomarkers of risk. Among statin-treated individuals, it remains unclear whether associations of these biomarkers with stroke and cardiovascular outcomes differ by sex. We examined sex-specific associations of hs-CRP and LDL-C with stroke and cardiovascular outcomes among statin users in the Reasons for Geographic and Racial Differences in Stroke (REGARDS) cohort study. We conducted a prospective analysis of 7,389 REGARDS participants taking statin therapy at baseline (3,952 men; 3,437 women). Baseline hs-CRP and LDL-C were categorized into quartiles (Q1–Q4) and evaluated as predictors of ischemic stroke, coronary heart disease (CHD) events, cardiovascular death, and a composite outcome during follow-up. Associations were estimated using Cox proportional hazards models stratified by sex and adjusted for sociodemographic characteristics and cardiovascular risk factors. In men, higher hs-CRP levels were associated with increased risk across all outcomes, with risk increasing at higher quartiles; at Q4 vs Q1, HRs were 1.41 (95% CI 1.06–1.87) for ischemic stroke, 1.68 (1.34–2.09) for CHD events, 1.90 (1.52–2.39) for cardiovascular death, and 1.56 (1.33–1.85) for the composite outcome. In women, higher hs-CRP levels showed similar patterns for CHD events (HR 1.41, 95% CI 1.03–1.95), cardiovascular death (HR 1.36, 95% CI 1.02–1.81), and the composite outcome (HR 1.29, 95% CI 1.05–1.58), while associations with ischemic stroke were weaker (HR 1.21, 95% CI 0.86–1.69). LDL-C showed weaker and less consistent associations in both sexes. Among statin-treated individuals, higher hs-CRP levels were associated with increased risk of stroke and cardiovascular outcomes, particularly in men. Inflammatory risk may help refine cardiovascular risk assessment beyond LDL-C.

47. A Data-Driven Approach to Identifying Multidien, Catamenial Seizure Cycles in Women with Epilepsy

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One third of women with epilepsy demonstrate catamenial seizure cycles, or catamenial epilepsy (CE). Clinical criterion for CE relies on static comparisons of seizure frequency between menstrual cycle phases. Quantitative methods for identifying inherent, hormonally driven seizure cycles are lacking. Thus, the aim of the present study was to use innovative, data-driven approaches for quantifying catamenial seizure cycles and CE in women with epilepsy. This study retrospectively analyzed seizure diaries paired with menstrual data in a subset of women previously enrolled into the Women with Epilepsy: Pregnancy Outcomes and Deliveries (WEPOD) study (N=89). We used three methods to identify catamenial seizure patterns and CE: (1) subjective report of CE, (2) standardized, clinical criteria for CE, and (3) Morelet wavelet transformations for quantifying seizure cyclicality. The concordance between these methods was then compared. Seizure and menstrual data from 11 participants (11/89, 12%), with sufficient seizure counts and seizure diary lengths from WEPOD, were analyzed. Five participants (5/11, 45%) met clinical criteria for CE. Two participants (2/11, 18%) had wavelet-defined multidien seizure cycles, only one of whom also met clinical criteria for CE and self-identified CE. There was low concordance for the combined, three-method approach (Fleiss's $k = 0.14$), but there was moderate concordance for the combination of the standardized CE criteria and the wavelet-defined approach to seizure cyclicality (Cohen's $k = 0.46$). Satisfying both subjective and data-driven criteria for CE was uncommon in our study cohort. Thus, adequate verification of CE may require a combination of clinical and statistical, data-driven methodology.

48. A longitudinal investigation of sex differences in the acoustic startle reflex of adolescent athletes following concussion

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The acoustic startle reflex (ASR) is a brainstem-mediated reflex that is suppressed acutely post-concussion; however, it is unknown whether this suppression persists beyond the acute concussion recovery timeline. Female athletes appear to have greater variability in their ASR acutely post-concussion, but it is unknown how sex differences may manifest beyond this window. We longitudinally investigated sex differences in the ASR of recently concussed adolescent athletes. We conducted a longitudinal study on 21 adolescent athletes (11 females, 10 males) with a recent concussion (age: 15.2 ± 2.3 years, time since concussion: 36.5 ± 17.8 days). All participants were given a startle evaluation at their initial post-concussion visit and 6-months post-concussion (mean time between visit 1 and visit 2: 189.0 ± 32.2). ASR was recorded via electromyography using electrodes placed under the right eye. Startle magnitude (μV) was analyzed using a linear mixed-effects model with sex, time, and the interaction included as fixed effects. The main effects of sex ($\beta = 10.42$, $p = 0.57$) and time ($\beta = -19.34$, $p = 0.3$) on ASR magnitude were not significant. The interaction effect between sex and time on ASR was near significance ($\beta = 44.34$, $p = 0.085$) with a moderate effect size. None of the fixed effects showed statistical significance. While non-significant, the interaction effect showed a crossover interaction of startle magnitude between sexes at time one compared to time two. This may indicate variations in concussion recovery between sexes across time.

49. Same genes, different reflexes: Acoustic startle response in female identical twin adolescent athletes with discordant concussion histories

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Introduction: Monochorionic-monoamniotic (MCMA) twins are a rare (<1% of twin pregnancies) category of identical twins who share a single placenta and amniotic sac. The acoustic startle response (ASR) is a brainstem-mediated reflex that we have identified as a potential marker of lingering post-concussion dysfunction. We had the unique opportunity to study MCMA female twin athletes with significantly differing concussion histories. Thus, the purpose of this case study was to describe psychophysiological differences in these girls. Methods: A set of 17-year-old MCMA identical twin female athletes enrolled in our concussion study. Twin A participated in multiple contact sports, including lacrosse and soccer, and had a history of 5 diagnosed concussions prior to her most recent concussion (30 days prior to the first study visit). Twin B participated in cross country, a non-contact sport, and had no concussion history. The twins completed an acoustic startle assessment at their initial study visit and then again approximately one year later. The ASR was recorded via electromyography using electrodes placed under the right eye. We calculated the average ASR magnitude in microvolts (μV) across the two time points. Results: Twin A exhibited a markedly suppressed ASR ($99.22 \pm 54.55 \mu\text{V}$) over one year compared to Twin B ($177.49 \pm 30.51 \mu\text{V}$). Conclusion: The twin with a significant history of documented concussions presented with attenuated startle reactivity compared to the twin with no concussion history. This evidence in an otherwise genetically identical population suggests that concussions may have long-lasting effects on psychophysiological responses.

50. Training Behaviors, Athlete Identity, Well-being, and Resilience Among Females with and without Low Energy Availability Indicators Preparing for an Endurance Race

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Low energy availability indicators (LEA-I; menstrual dysfunction, disordered eating behaviors) is a prevalent health concern affecting ~40% of physically-active females. Females with LEA-I may have altered training behaviors contributing to poor patient-reported function, though these relationships remain to be explored. Purpose: Compare training behaviors and patient-reported athlete identity, well-being, and resilience among females with and without LEA-I leading up to an endurance race. This cross-sectional electronic survey used a snowball sampling approach among adult females preparing for an endurance event (Ironman, Triathlon, Half/Full Marathon). Surveys included demographics and experience, past-year training (average weekly hours and distance for swimming, biking, running, cross-training), and patient-reported outcomes (athlete identity [AIMS], General Health, PROMIS sleep, resilience [BRS]). The Low Energy Availability in Females questionnaire (LEAF-Q) was used to establish the presence of LEA-I (LEAF-Q \geq 8). Multivariate analyses of variance were used to compare groups (LEA-I vs. Non-LEA-I) for training and patient-reported outcomes. Cohen's d effect sizes used for significant findings ($\alpha=0.05$). 36 of 64 females met the LEA-I criteria. Compared to the Non-LEA-I group, the LEA-I group reported significantly fewer weekly swim hours and distance ($p=0.004$, $d=0.75$, Table). Additionally, the LEA-I group had significantly worse General Health ($p=0.03$, $d=0.56$) and BRS scores ($p=0.04$, $d=0.54$; Table). Females with LEA-I preparing for an endurance race reported significantly reduced swimming training behaviors and worse general health and resilience compared to Non-LEA-I counterparts. These findings suggest that those with LEA-I complete less non-impact training, which may contribute to poorer self-reported health outcomes associated with LEA-I.

51. Neuromuscular Impairments among Adolescent Females with Low Energy Availability Indicators at 6-months Post-Anterior Cruciate Ligament Reconstruction

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Low energy availability indicators (LEA-I) present a prevalent health concern affecting approximately 25% of adolescent females. LEA-I presence impairs musculoskeletal strength and response to neuromuscular training, with negative implications for recovery from injury and surgery (anterior cruciate ligament reconstruction [ACLR]). The purpose of this study was to assess the influence of LEA-I on surgical limb neuromuscular strength and functional performance at 6-months post-ACLR. We included 56 post-ACLR adolescent females with LEA-I and 56 age- and ACLR graft-matched non-LEA-I females (16±1 years; all tendon grafts: 75% hamstring, 16% quadriceps, 9% patellar). LEA-I was defined as menstrual dysfunction (primary/secondary amenorrhea, oligomenorrhea), with or without an eating disorder. Athletes with prior lower extremity surgeries, hormonal medication exposure, and/or polycystic ovarian syndrome were excluded. All patients completed standardized physical therapy post-ACLR up to the 6-month post-ACLR clinic visit. At 6-months, all patients completed an assessment battery for surgical limb mass-normalized quadriceps, hamstrings, gluteus maximus, and gluteus medius strength, and functional hop performance (single, triple, cross-over, timed tests). Independent samples t-tests were used to compare neuromuscular outcomes between groups, with Cohen's d effect sizes for significant findings ($\alpha=0.05$). Compared to the non-LEA-I group, the LEA-I group had significantly lower quadriceps ($p<0.001$, $d=0.71$), hamstrings ($p=0.019$, $d=0.45$), and gluteus medius strength ($p=0.009$, $d=0.50$), and slower timed hop tests ($p=0.028$, $d=0.43$). LEA-I was found to negatively influence lower extremity neuromuscular strength and functional performance during a key clinical post-ACLR 6-month timepoint. Clinicians should address energy intake during ACLR recovery to optimize post-operative neuromuscular outcomes.

52. Titanium-Aluminum-Vanadium Implant Surface Properties Impact Osseointegration in Osteoporotic Bone

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Osteoporosis, associated with reduced systemic estrogen, is characterized by reduced biomechanical strength. Optimizing implant stability via osseointegration in the initial stages of peri-implant bone regeneration is essential for preventing or limiting implant loosening. When grown on Ti6Al4V surfaces with a microscale/nanoscale (MN) topography that mimics an osteoclast resorption pit, bone marrow stromal cells (MSCs) produce osteoinductive factors and generate pro-regeneration inflammatory mediators. This study aimed to examine the success of MN implants in enhancing osseointegration in aged female rats, compared to an anodized (AN) surface. Female retired breeder Sprague Dawley rats were ovariectomized (OVX) or sham-operated (sham) (11 months). At 17 months, microCT confirmed osteoporosis in OVX rats. Rats received bilateral AN or MN Ti6Al4V implants in their femoral metaphysis (N=8/group). On day-28 post-implantation, mechanical testing was performed on freshly harvested limbs. Alternatively, after microCT measurements were made, limbs were processed for histomorphometry. Additional rats was euthanized on days 3, 7, and 14 post-implantation, and mRNA was extracted from adherent tissue. Bone volume (microCT and histomorphometry) and fixation strength were reduced in OVX-AN rats, but bone-to-implant contact (BIC), in OVX-MN rats was comparable to sham-AN and sham-MN. mRNAs associated with osteogenesis (RUNX, OST, and OCN) were greatest in OVX-MN and sham-MN tissue on days 7 and 14. mRNA for interferon gamma was highest in OVX-AN on day 3. The MN surface modification of Ti6Al4V can improve osseointegration of implants in osteoporotic bone to a level similar to that of normal animals, as shown by multiple modalities of analysis.

53. Investigating the Roles of microRNA-21 and microRNA-29 in Fibrosis

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Arthrofibrosis is a common complication of total knee arthroplasty and anterior cruciate ligament injuries, where unresolved inflammation causes the buildup of scar tissue, leading to a reduction in range of motion and quality of life. It occurs 2.5X more in women than men. There is no clinically effective treatment for arthrofibrosis other than physical therapy or surgical removal of the fibrotic tissue. We aim to validate therapeutic microRNAs for future use in a post-surgical arthrofibrosis prophylactic. NRK-49F fibroblasts were cultured, and at 80% confluence, cells were treated with 0, 1, or 10 ng/mL TGF- β 1 for 48 hours. Lysates were probed for markers of fibrosis, and in additional experiments, probed via RT-qPCR for miRNA-21 and the miRNA-29 family. In separate experiments, NRK-49Fs were treated for 48 hours with or without TGF- β 1 and 0, 1, or 10 μ M SMAD3 inhibitor SIS3. Data were reported after one- or two-way ANOVA, followed by Tukey's post hoc testing. Significance at $P < 0.05$, $N = 6$ /variable, experiments repeated for validation. Treatment with 10 ng/mL TGF- β 1 for 48 hours increased the relative amounts of selected fibrotic proteins. Treatment with 10 μ M SIS3 and 10 ng/mL TGF- β 1 lowered all markers compared to the TGF- β 1-only group and was similar to the no-treatment control. TGF- β 1 caused an increase in levels of miRNA-21, miRNA-29a, and miRNA-29b, but had no effect on miRNA-29c. The results of the present study indicate the potential for miR-21 inhibitor and miR-29b mimic to act as therapeutics for preventing post-surgical arthrofibrosis.

54. Hip Replacement and Postoperative Depressive Disorders: A 26-year Retrospective Cohort Study Using Real-World Data

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Osteoarthritis (OA) affects women 1.5 times more than men. Chronic pain from OA is the primary indication for hip replacement which is the second most common joint replacement and also more prevalent in women. Previous studies have suggested an increased risk for depression following arthroplasty shortly after surgery. This study used real-world data to examine whether hip replacement is associated with depression incidence over a five-year period following surgery. This retrospective study used the TriNetX research network, including data from 66 healthcare organizations. Adults 60+ years of age who underwent hip arthroplasty between 2000 and 2025 in the US Collaborative Network were identified. The control group consisted of patients who experienced hip pain but did not undergo any arthroplasty. Outcomes were defined using ICD-10 codes. Risk estimates, Kaplan-Meier survival analysis, and Cox proportional hazards models were used after excluding patients with prior outcomes. Hip replacement was associated with higher risk of recurrent major depressive disorder (1.8% vs 1.2%; RR 1.467, 95% CI 1.256-1.712; HR 1.327, 95% CI 1.135-1.551; $p < 0.001$). No differences were observed between groups in non-recurrent or single-episode depression. Among matched hip arthroplasty patients, females had a consistently higher burden than males across all outcomes, including any depressive disorder (6.4% vs 4.8%; RR 1.343, 95% CI 1.166-1.547; $p < 0.001$). Older adults undergoing hip arthroplasty experienced more recurrent depressive disorders compared with controls, and females experienced a higher burden among the hip arthroplasty cohort. These findings demonstrate an increased risk for new onset depression following hip arthroplasty. Future efforts should investigate potential intervention strategies and seek to understand the underlying biological and environmental factors contributing to this increased risk.

55. Predictive Clinical and Ultrasound Features Distinguishing Ovarian Torsion from Ruptured or Hemorrhagic Ovarian Cysts in the Emergency Department Setting

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Ovarian torsion is a rare surgical emergency whose nonspecific presentation overlaps with ruptured or hemorrhagic ovarian cysts, complicating early diagnosis. The aim of this study is to present clinical and ultrasound features that may differentiate ovarian torsion from ruptured or hemorrhagic ovarian cysts in the emergency department. We conducted a retrospective case-control study of females aged 14-45 presenting to the VCU Medical Center ED between 2021-2024 with a diagnosis of ovarian torsion or ruptured/hemorrhagic cyst. Torsion cases required surgical confirmation for inclusion. Symptoms assessed included abdominal tenderness and nausea/vomiting. Ultrasound variables included cyst size, ovarian enlargement, free pelvic fluid, and Doppler flow. Variables were compared using t-tests or Fisher's exact test, as appropriate. Odds ratios (ORs) with 95% confidence intervals were calculated. Significance was defined as $p < 0.05$. Ninety-two patients were included (n=5 torsion, 87 cyst). Torsion patients were younger (mean 21 vs. 30 years, $p < 0.05$). Nausea/vomiting occurred in 100% vs. 45% ($p = 0.022$, OR = 13.5). Cyst size >5 cm (80% vs. 12%, $p = 0.0016$, OR = 31) and ovarian enlargement >5 cm (40% vs. 2%, $p = 0.014$, OR = 28) were associated with torsion. Abdominal tenderness (100% vs. 91%, $p = 1$), free pelvic fluid (20% vs. 47%, $p = 0.37$), and Doppler abnormalities (20% vs. 0%, $p = 0.054$) were not significant. Integration of select clinical and imaging features may improve early recognition of torsion, however, there is a need for larger prospective studies to further distinguish the two conditions.

56. Nanoparticle-Mediated Co-Delivery of SPC-839 and Methotrexate for Treating Deep Infiltrating Endometriosis

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Poly(lactic-co-glycolic acid) (PLGA) and polyethylene glycol (PEG) are biodegradable and biocompatible polymers widely used in nanomedicine due to their ability to encapsulate therapeutic agents, improve circulation stability, and enable controlled release while reducing systemic side effects. There is increasing interest in non-hormonal treatment strategies for endometriosis, and methotrexate is an anti-inflammatory and anti-proliferative drug that has shown promising results in early clinical trials. However, when administered systemically, the drug distributes preferentially to eutopic endometrium and peritoneal tissues rather than ectopic lesions, limiting therapeutic accumulation at disease sites. We are designing PLGA nanoparticles functionalized with a heptapeptide as a targeted delivery platform to encapsulate methotrexate and an IKK inhibitor for the treatment of Deep Infiltrating Endometriosis (DIE), the most aggressive form of the disease. Particle physicochemical characteristics being measured include primary particle size and morphology, hydrodynamic diameter and polydispersity, zeta potential, encapsulation efficiency, and drug loading. Hydrodynamic diameter of all formulations was found to be approximately 215 nm. The polydispersity index (PDI) values ranged from 0.05 to 0.25, indicating a narrow size distribution and good uniformity among the particles. These results suggest that the developed PLGA-PEG nanoparticle formulation is a consistent synthesis approach, producing particles with controlled size and physicochemical properties for further evaluation as a targeted delivery system in deep infiltrating endometriosis.

57. The cytopathogenic toxin A of *Sneathia vaginalis* triggers ATP release and mitochondrial damage in epithelial cells

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Sneathia vaginalis is a component of the vaginal microbiome and is clinically significant because of its strong association with adverse pregnancy outcomes, including preterm birth. The mechanisms by which it damages host tissues remain unclear. The only *S. vaginalis* virulence factor that has been studied to date is the cytopathogenic toxin A, CptA, a secreted pore-forming toxin that induces membrane injury in human cells. In this study, we investigated the effects of *S. vaginalis* on mitochondrial integrity and function. Human vaginal keratinocytes (VK2) were cultured in KSFM at 37°C, and 5% CO₂. *S. vaginalis* strain SN35 and a *cptA* deletion mutant, SN35Δ*cptA*::erm, were grown anaerobically in porcine BHI containing 10% fetal bovine serum (BHIs) and 10 mg ciprofloxacin/ml. VK2 monolayers were co-cultured with *S. vaginalis* or vehicle control (KSFM). Extracellular ATP (eATP) release was quantified using a luciferin/luciferase assay. MTT (3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide) assay was used to assess metabolic activity. To assess mitochondrial morphology in VK2 cells following *S. vaginalis* exposure, VK2 cells were grown in Permax Petri dishes, co-cultured with SN35, SN35Δ*cptA*::erm, or media only for 30 minutes at 37°C, 5% CO₂. Cells were fixed with 2.5% Glutaraldehyde in 0.1M Sodium Cacodylate buffer at 21°C, 60 minutes, stained with uranyl acetate, and mitochondrial structure was analyzed by Transmission electron microscopy (TEM). The Seahorse XF analyzer was used to measure oxygen consumption rate (OCR), Extracellular Acidification rate (ECAR), and ATP production rate. Wild-type SN35 (but not SN35Δ*cptA*::erm) induced ATP release from VK2 within 5 minutes, suggesting that ATP may be released through pores formed by CptA. Pretreatment of VK2 with ATP channel-specific inhibitors prior to adding *S. vaginalis* did not inhibit ATP release. VK2 cells exposed to SN35 had decreased intracellular ATP levels, reduced NADPH-dependent oxidoreductase activity, and reduced OCR and ECAR. TEM revealed that mitochondria in SN35-treated VK2 were shorter and contained fewer cristae. Together these results reveal that CptA-producing *S. vaginalis* induces profound mitochondrial dysfunction. *S. vaginalis* promotes epithelial injury by triggering rapid eATP release and structural and metabolic mitochondrial impairment in a CptA-dependent manner. These findings create opportunities to investigate eATP as a DAMP that may contribute to inflammation during *Sneathia* infection.

58. Exogenous Testosterone Therapy and the Vaginal Microbiome in Transmasculine and Other AFAB Testosterone Users: A Systematic Review

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Exogenous testosterone therapy is a cornerstone of gender-affirming care for many transmasculine individuals, yet its effects on the vaginal microenvironment remain poorly characterized. This study aimed to systematically synthesize evidence on the association between exogenous testosterone and the vaginal microbiome in transmasculine and other AFAB testosterone users, with attention to microbial composition, inflammatory correlates, and clinical implications for gender-affirming care. Ovid MEDLINE, Embase, CINAHL, Web of Science, SciELO, and Global Index Medicus were searched from January 1, 2015 through January 15, 2026. Eligible studies reported original empirical data on vaginal microbiome-related outcomes in AFAB individuals with a retained vagina using exogenous testosterone for gender-affirming, medical, or experimental purposes. Two reviewers independently screened records, assessed full texts, extracted data, and appraised methodological quality using JBI critical appraisal checklists. Because studies were clinically and methodologically heterogeneous, findings were synthesized narratively. Seven studies met inclusion criteria. All involved transmasculine or nonbinary participants receiving gender-affirming testosterone; no eligible studies identified AFAB testosterone users outside gender-affirming care. Across studies, testosterone was associated with reduced *Lactobacillus* dominance, enrichment of anaerobic taxa, greater alpha diversity, higher vaginal pH, and atrophic or bacterial vaginosis-like symptoms. Limited evidence suggested altered local inflammatory signaling. Intravaginal estrogen use was associated with greater *Lactobacillus* dominance in one study. The available evidence is directionally consistent: exogenous testosterone appears to restructure the vaginal microenvironment toward a more diverse and potentially less protective microbial state. Larger longitudinal cohorts, standardized hormone reporting, mechanistic multi-omic studies, and intervention trials are needed to guide evidence-based, gender-affirming vaginal care.