1. Pregnancy Specific Expression of Protease-Activated Receptor 1 on Neutrophils Results in a Unique Genetic Signature when Activated by Protease

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Neutrophils, which extensively infiltrate maternal systemic blood vessels in preeclampsia, express protease-activated receptor-1 (PAR-1), but only during pregnancy. Therefore, protease activation of pregnancy neutrophils could result in a gene expression signature unique to pregnancy and help explain why the maternal inflammatory response of preeclampsia is systemic rather than localized as for a wound infection. Two proteases that are elevated in preeclampsia are matrix metalloprotease-1 and neutrophil elastase. We sought to determine if gene expression of pregnancy neutrophils would differ if stimulated by a protease versus lipopolysaccharide (LPS), a bacterial product. We isolated neutrophils from normal pregnant women at 30 weeks gestation, cultured them with elastase or LPS, and isolated RNA for sequencing. We found many differences in the gene expression profiles. Elastase resulted in 3 times more uniquely expressed genes than LPS. The patterns for heatmap cluster analysis of high and low expressed genes were very different. The number of significantly differentially upregulated and downregulated genes was greater for elastase. Analysis of canonical pathways revealed similarities for innate immunity, but also differences. LPS enriched more pathways, but elastase activated more genes in each pathway. A significant difference was that elastase enriched the MAPK signaling pathway, whereas LPS did not. This is significant because MAPK is a key mediator of transcriptional responses and controls gene expression in several ways including phosphorylation and regulation of transcription factors. These findings indicate that protease stimulation of pregnancy neutrophils results in a different genetic profile than stimulation with LPS, which may help explain why the sterile inflammatory response of preeclampsia is systemic and unique to pregnancy.
2. Assessing the Impact of Sex, Age, and Ethanol on Spatial Memory and Ethanol Metabolism

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Ethanol is the most consumed drug among adolescents and is consumed at similar rates in males and females. However, sex influences ethanol metabolism and the progression into alcohol dependence in humans. While both adolescents and adults engage in binge drinking, the neurological and behavioral effects differ. This study assessed the impact of age, sex, and ethanol on spatial memory and ethanol metabolism in rodents. Male and female DBA/2J mice were exposed to an intermittent binge ethanol model of either water or 4g/kg ethanol from postnatal day (PND) 29-42 (adolescent cohort), or from PND 64-77 (adult cohort). After a 3-week abstinence period, mice were tested for spatial memory on the Barnes Maze. A behavioral and ethanol naïve cohort of PND 35 or PND 65 mice were administered 4g/kg ethanol (i.g.) and blood ethanol concentrations (BEC) were measured at 0.5, 1, 2, and 4 hours. Ethanol exposure decreased spatial memory in adolescents compared to controls, while adult treated mice showed no difference. BECs differed due to a timepoint X age interaction, with adolescent animals regardless of sex showing a consistent decline in ethanol over time. Meanwhile, adult mice showed an initial rise in ethanol followed by a decline. Together this data suggests ethanol metabolism differs in adolescent and adult mice but, despite higher BEC in adult mice, memory is unaffected. This further suggests the adolescent developing brain is more severely affected by the long-lasting impacts of ethanol. Supported by NIAAA R01AA026347 (JTW) and NIAAA F31AA029305 (MAMB).
3. Adolescent Binge Ethanol-Induced Dysregulation of H3K36me3 May Underlie Lasting Memory Deficits

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The prefrontal cortex (PFC) undergoes significant changes during adolescence, and alcohol exposure during this time is particularly damaging. Consuming alcohol in binges negatively impacts the adolescent brain, causing structural changes, decreased myelin, and lasting memory deficits. Gene expression changes in the PFC were measured to uncover the mechanisms in which ethanol induces these behavioral changes, and results showed that ethanol decreased the expression of chromatin remodeling genes responsible for the methylation of histone 3 lysine 36 (H3K36). H3K36me3 is present within the coding region of actively-transcribed genes, and safeguards against aberrant transcription by RNA Polymerase II. H3K36me3 plays a critical role in memory consolidation and is increased in the PFC immediately after a Novel Object Recognition task (NOR). Conversely, decreases in H3K36me3 are associated with deficits in NOR. We hypothesize that dysregulation of H3K36me3 could be responsible for the persistent memory deficits seen in binge ethanol-exposed adolescents. To investigate this, ethanol or water were administered to adolescent mice. ChIP-sequencing was then performed to determine the genes at which H3K36me3 was disrupted by ethanol. While males and females both show ethanol-induced memory deficits, our ChIP results suggest that this phenotype may have different underlying mechanisms. In males, G-protein and PKA binding genes showed altered H3K36me3 binding, while in females, methionine metabolism and methyltransferase activity genes were impacted. In both sexes, synaptic transmission related genes were impacted. Although the underlying mechanism of ethanol-induced memory deficits is not yet confirmed, our results provide preliminary evidence that dysregulation of this mark may be involved. Supported by NIAAA R01AA026347 to JTW and F31AA029259 to ERB.
4. Differences across sexes in psychedelic-induced head-twitch behavior and 5-HT2A receptor signaling in C57BL/6 mice

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Psychedelics, also known as serotonergic hallucinogens, have gained an increased amount of attention for their potential therapeutic properties as it relates to a myriad of neuropsychiatric disorders. These compounds, such as lysergic acid diethylamide (LSD), psilocybin or the substituted amphetamine 1-(2,5-dimethoxy-4-iodophenyl)-2-aminopropane (DOI) are suggested to promote cognition through an increase in synaptic activity in the frontal cortex via serotonin 2A receptor (5-HT2A), and that this mechanism is responsible for the robust and sustained therapeutic effects. Clinical studies focused on understanding the effects of psychedelics in humans tend to exclude sex and gender as a factor due to the power of the study or have used both sexes but were ambiguous about statistical analysis and reporting any differences. Much of the understanding of psychedelic pharmacology is derived from animal behavioral models, but despite the availability of multiple species and sexes, most research has only focused on males. The present study aimed to characterize potential differences across sexes in a rodent behavioral proxy of psychedelic action via activation of the 5-HT2A receptor. Using C57BL/6 and 129sv/ev male and female mice, we report differences across sexes in the former but not the latter. This observed difference in response to psychedelics may be due to differences in 5-HT2A receptor density and activation of specific downstream signaling pathways.
Breast cancer has the highest incidence rate of all cancers globally in women, and those of African descent, especially West African females, face higher rates of triple-negative breast cancer (TNBC), a more aggressive form of breast cancer. Immunotherapy for breast cancer is a relatively new treatment option, and research is ongoing to identify the best combination treatments for increasing survival of those diagnosed with TNBC. Eganelisib (IPI-549: a PI3K-gamma inhibitor that works to shift M2 macrophages to M1 to augment T cell function) with other combinatory treatments has shown promising results in reducing tumor growth and increasing survival in mice. We have been conducting experiments to determine the most effective treatment regimen that will reduce growth of 4T1 mammary cancers, a murine TNBC model in syngeneic BalbC female mice. Combinations of eganelisib, cyclophosphamide, and anti-PD-1 or anti-PD-L1 have been tested to determine how immunotherapy and chemotherapy can induce a strong immune response, resulting in better responses to chemotherapy. Our current data indicates that a treatment regimen combining eganelisib, cyclophosphamide, and anti-PD-1 was most effective at suppressing tumor growth, compared to other treatments that only included one or two of these treatments. Mean tumor sizes of mice treated with a combination of eganelisib and other treatments were 187±70 mm³, 232±71 mm³, and 227±59 mm³ at the end of the experiments, compared to control data of 576±137 mm³, 414±31 mm³, and 591±200 mm³, respectively. These results could lead to further research on effective immunotherapy treatment combinations for TNBC.
6. Sex Differences in the Innate Immune Response to Lung Cancer

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BACKGROUND: Lung cancer is the second most diagnosed cancer. Lung cancer exhibits a sex difference, though the exact mechanisms behind this difference are not well understood. Men have a higher lifetime risk of developing lung cancer and often have more severe disease than women. There are thought to be multiple factors that contribute to this difference, including the environment, lifestyle, sex hormones, and differing immune responses. METHODS: Mouse tumor models of lung, breast, colon, melanoma and kidney were used in immune competent or immune compromised mouse models treated with the chemotherapy ABT-263. The study of the immune response to lung tumors utilized ex vivo killing assays, multicolor flow cytometry, and clonogenic survival. RESULTS: We observe a sex difference in two models of lung cancer in immunocompetent mice, but not in models of breast, colon, kidney, or melanoma. This difference is dependent on the innate immune system, specifically through natural killer cells and macrophages. This sex difference is lost in ovariectomized mice. Multicolor flow cytometry shows differences in innate immune cell populations in tumors and spleens in males and females. Preliminary data suggests pro-apoptotic ligands secreted from innate immune cells are more effective on cells exposed to female compared to ovariectomized female mouse serum. Reduced tumor growth in female mice can be further enhanced with ABT-263, and this effect requires NK cells. CONCLUSIONS: The innate immune system modulates the sex difference in lung cancer. This research opens the potential for immune stimulating therapies, combined with ABT-263, as a novel treatment approach.
7. **Quantification of Levels of IgA and IgG that Recognize CptA in Cord Blood Samples**

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Sneathia vaginalis is a poorly characterized emerging pathogen. It is difficult to cultivate and detect within the clinical microbiology lab setting, but the recent surge in studies that use DNA-based techniques for bacterial species identification have revealed that it is a common isolate in amnionitis and is associated with preterm birth and other pregnancy complications. Our lab purified a cytotoxic exotoxin that lyses human red blood cells and damages epithelial cells. We have also found that it is required for the traversal of S. vaginalis through fetal membranes in an ex vivo model suggesting that it plays a role in pregnancy outcome. The pore-forming cytotoxin, cytopathogenic toxin (CptA), is currently the only S. vaginalis virulence factor that has been identified and characterized. In this study, we quantified levels of antibodies (IgA and IgG) that recognize CptA in cord blood samples from 35 babies born preterm and 45 babies born at term by enzyme-linked immunoassays (ELISA). There was a trend linking anti-CptA IgA to preterm birth, but it did not reach statistical significance likely because this preliminary study was under-powered by the size of the cohort. However, the study establishes, for the first time, that CptA is expressed in vivo and recognized by host immune defenses, provoking an antibody response. Future plans include testing cord blood samples’ ability to neutralize CptA, increasing the size of the cohort tested by ELISA, and testing vaginal swab samples and peripheral maternal plasma for the presence of anti-CptA IgA and IgG.
8. Adipocyte Angiopoietin-2 loss prompts female-specific diet-induced obesity and metabolic syndrome

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Thermogenic fat differentiation and function can be promoted through multiple pathways, resulting in a common cell phenotype characterized by the expression of Uncoupling Protein-1 and the ability to dissipate energy. Local and systemic stimuli are necessary to promote adequate thermogenic fat vascularization, which is a precondition that enables the transport of substrate and the dissipation of heat. Angiopoietin-2 is an important driver of vascularization, and its transcription is in part promoted by estrogen signaling. Here we describe that adipose tissue-specific knock out of Angiopoietin-2 causes a female-specific impaired thermogenic fat differentiation and function, resulting in obesity and impaired glucose tolerance with end-organ features consistent with metabolic syndrome. In humans, angiopoietin-2 levels are higher in females than in males, are inversely correlated with adiposity and age, and are more strongly correlated with adiposity in pre-menopause compared to post-menopause. Collectively, these data indicate a novel and important role for estrogen-mediated Angiopoietin-2 adipose tissue production in the protection against calorie overload in females, and potentially in the development of postmenopausal weight gain.
memory deficit chemotoxicity in female mice: endocannabinoid catabolic enzyme inhibition as a therapeutic strategy

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Introduction: Breast cancer is the most common cancer in women, with two thirds of cases being estrogen dependent. Inhibitors of aromatase, the primary biosynthetic enzyme of estrogen, reduces breast estradiol and represents an effective second line treatment strategy to prevent breast cancer recurrence. Despite the efficacy of aromatase inhibitors (AIs) in preventing disease recurrence, these drugs produce side effects including learning and memory deficits. Here we use a mouse model (the object location (OL) task) to evaluate whether monoacylglycerol lipase (MAGL), the primary degradative enzyme of the endocannabinoid 2-arachidonoylglycerol (2-AG) that plays an integral role in short-term synaptic plasticity, may serve as a potential target to prevent these side effects produced by the AI letrozole (LTZ). Methods: Female ovariectomized (OVX) C57BL/6J mice were administered LTZ (0.5 mg/kg, p.o.) and the MAGL inhibitor MJN110 (0.0625, 0.125, 0.25 mg/kg) for 14 days, then tested on day 14 in the OL task. In a second experiment, mice were given repeated administration of LTZ in combination with MJN110 (0.125 mg/kg) and the cannabinoid 1 receptor (CB1R) antagonist rimonabant (3 mg/kg). Results: The MAGL inhibitor MJN110 protected against AI-induced OL task memory deficit at 0.125 and 0.25 mg/kg. The CB1R antagonist rimonabant prevented MJN110 protection from the LTZ-induced OL task deficit. Conclusions: These data demonstrate that repeated administration of low doses of a MAGL inhibitor prevents AI-induced hippocampal-dependent memory task deficits through a CB1R mechanism of action. Thus, MAGL represents a potentially promising strategy to prevent learning and memory impairment produced by prolonged AI treatment.
10. Interaction with TopBP1 mediates human papillomavirus 16 E2 plasmid retention function and stability during viral lifecycle

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Cervical cancer is the fourth most common cancer among women globally. Majority of cervical cancers are caused by human papillomavirus (HPV). Understanding interactions between HPV and the host can provide new targets for infection control and development of targeted therapeutic protocols. The HPV16 E2 protein has important functions during its life cycle. Previously we have described TopBP1 as a cellular protein that interacts with the E2. TopBP1 regulates host cell replication, cell cycle control, associates with mitotic chromatin. TopBP1 is a candidate for mediating any of the known E2 functions. TopBP1 encodes 9 BRCT domains that interact with phospho-peptides and we identified an E2 serine residue responsible for mediating the interaction between E2 and TopBP1. Serine to alanine mutation in HPV16 E2 failed to complex with TopBP1 in vivo. We demonstrated that phosphorylation of the E2 serine residue by CK2 promotes the E2-TopBP1 interaction. We developed a segregation assay to monitor the ability of E2 to segregate plasmids into daughter cells and shown that the interaction between E2 and TopBP1 is needed for this function of E2. Furthermore, when TopBP1 was knocked down with siRNA, the segregation function of HPV16 E2wt was lost. Additionally, E2-TopBP1 interaction is required for expression of E2 protein during HPV life cycle. Overall, our results demonstrate that E2-TopBP1 interaction is crucial for segregation function and is essential for viral life cycle due to stabilization of E2. Targeting this function would reduce viral genome load and has direct therapeutic relevance for treating HPV16 infections and cancers.
11. Pain-Depressed Climbing in Male and Female Mice as a Tool for Analgesic Drug Development

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Purpose: Novel analgesic drugs should alleviate pain-related behavioral depression. This study evaluated climbing behavior by mice as a potential endpoint for preclinical studies on pain-depressed behavior and analgesic drug development. Methods: Climbing by adult male and female ICR mice was evaluated in plexiglass cylinders equipped with wire mesh covering the inner walls. Time climbing was quantified during 10-min behavioral sessions. Four experiments were conducted in separate groups of ≥12 mice (6 male, 6 female). Experiment 1 evaluated stability of climbing in the absence of any treatment during repeated testing over a 2-week period. Experiment 2 evaluated depression of climbing by an acute, visceral pain stimulus [intraperitoneal lactic acid (IP acid), 0-0.56% in sterile water, 10-min pretreatment time]. Experiments 3 and 4 compared effectiveness of a positive-control analgesic (the cyclooxygenase inhibitor ketoprofen, 10 mg/kg) and a negative-control non-analgesic (the centrally acting kappa opioid receptor agonist U69593, 0.1-1.0 mg/kg) to block 0.32% IP acid-induced climbing depression. Data were analyzed by one- or two-way ANOVA followed by a Dunnett or Holm-Sidak post hoc test. The criterion for significance was p<0.05. Results: Climbing was stable during within-subject, repeated testing and averaged 262±21 sec during each 10-min session (Experiment 1). IP acid produced a concentration-dependent decrease in climbing (Experiment 2) that was blocked by ketoprofen (Experiment 3) but not by U69593 (Experiment 4). No sex differences were observed. Conclusions: These results support utility of climbing by mice as a behavioral endpoint for studies of pain-depressed behavior and for evaluation of candidate analgesics.
Chronic adolescent stress history interacts with chronic inflammation to shift microglial complexity in rats

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Chronic adolescent stress (CAS) can dysregulate the immune system, which has been implicated in neuropsychiatric manifestations. Females are twice as susceptible to stress-induced mood disorders but the extent to which sex differences in vulnerability to neuroinflammation mediate this difference is not fully understood. This study focused on understanding the interactions between a history of CAS and chronic inflammation in male and female rats. At postnatal day (PND) 38 Wistar rats underwent a 12-day CAS paradigm which included 6 days of physical restraint (60 min), 6 days of social defeat and isolation housing. Beginning PND 62, rats received an intraperitoneal injection of 7.5 x 10^4 EU of lipopolysaccharide (LPS) every 3 days for 9 weeks to mimic a chronic immune challenge and tissue was collected at PND 125. To assess the neuroimmune response, hippocampal microglia were reconstructed from the dentate gyrus, CA1, and CA3 regions along the dorsal-ventral axis to evaluate changes in microglial morphology. LPS and CAS altered microglia morphology differently along the axis in a sex-specific manner, with females showing shifts throughout the hippocampus. Rats were monitored weekly for changes in weight and terminal tissues collected to assess the peripheral effects of LPS. Males with a history of CAS weighed less than non-stressed males, regardless of LPS treatment. LPS increased spleen weight in both sexes. However, adrenal weight was only significantly lowered in males. Together, these data suggest that females are susceptible to neuroinflammatory effects of CAS, while CAS males demonstrate a more profound peripheral effect.
Rates of bariatric surgery have been rapidly increasing over the past few decades. While the procedure is considered low-risk and an effective intervention, some experience suboptimal outcomes. Previous research has focused on pre-surgical disordered eating, but much less is known about how disordered eating behaviors may develop post-surgery. The present study examined disordered eating behaviors in female patients who received bariatric surgery at least 1 year ago. Participants were recruited through local bariatric clinics, social media, and ResearchMatch.org. Interested and eligible participants completed an online anonymous survey which included the Eating Disorder Examination Questionnaire (EDE-Q). To date, 38 women completed the survey. The majority were white (94.6%) and their average age was 46. Participants were on average 83 months post-surgery. EDE-Q scores were elevated among participants across all subscales. EDE-Q restraint subscale scores were significantly higher than a gender specific community sample (t = 3.07, p = .0043), as were eating concern subscale scores (t=4.029, p < .001), shape concern subscale scores (t=5.063, p < .001), and weight concern subscale scores (t=5.311, p < .001). Global EDE-Q scores were also significantly elevated in our subsample (t=4.2069, p < .001). These heightened scores of eating disorder symptomatology in this group may indicate an unmet need in this population. Large gaps are present in research on eating-related psychopathology in patients after bariatric surgery due to lack of long term follow up care, and unique factors of eating behaviors in bariatric patients. Future research should investigate how disordered eating capture disordered eating behaviors documented in the bariatric community.
Pain Acceptance Predicts Reduction in Opioid Misuse Risk among Women who Taper Opioids in Interdisciplinary Pain Treatment

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The dual chronic pain and opioid crises have disproportionately affected women. Pain rehabilitation programs (PRPs) offer a viable treatment for concurrently addressing pain and opioid-related risks, with evidence that women demonstrate greater change. Pain acceptance was identified as a mediator of gender differences in pain and functioning outcomes, but there is limited research examining impact on opioid-related risks. This study explored pain acceptance as a predictor of opioid misuse reduction among women in a PRP. Data was analyzed from N=41 women who completed a 3-week, interdisciplinary PRP that involved tapering prescription opioids. All women started on daily opioids and completed baseline and post-treatment assessments: the Brief Pain Inventory (BPI), the Current Opioid Misuse Measure (COMM), and the Chronic Pain Acceptance Questionnaire (CPAQ), including two subscales, Activity Engagement (AE) and Pain Willingness (PW). Multiple linear regression estimated change in opioid misuse risk from changes in pain severity, AE, and PW. The overall model was significant (F(3, 37)=3.41, p<.05). Change in AE was a significant predictor of change in opioid misuse risk (b=.23, t=2.89, p<.01). Change in pain severity or PW were not significant. Change in AE, a component of pain acceptance involving pursuit of life activities despite pain, predicts greater degree of change in opioid misuse risk. This may be a particularly important treatment target for women with chronic pain to reduce opioid misuse risks. Change in pain severity was not significant, suggesting that increasing AE may be more important than changing pain itself, perhaps by enhancing mood and non-opioid coping.
Background: Buprenorphine-Naloxone (BUP-NAL) is an evidence-based treatment for opioid use disorder (OUD) (1). Sublingual BUP-NAL can be hazardous if ingested by an individual to whom the medication is not prescribed and, if stolen or lost, can put the patient at risk of substance use recurrence (2). Safely storing BUP-NAL is a crucial step in a harm reduction approach to OUD treatment (3). No study has previously assessed the medication safety storage practices among pregnant and parenting women receiving BUP-NAL (4,5). Purpose: 1) Assess the prevalence of current medication storage practices among a sample of pregnant and parenting women receiving BUP-NAL in an outpatient OUD clinic; 2) Assess the feasibility and acceptability of providing a lockbox for safe medication storage practice within the same population. Methods: Pregnant and/or parenting patients receiving sublingual BUP-NAL in an outpatient OUD clinic were recruited between June and September 15, 2021. After consent, participants completed a baseline survey, received a lockbox, then 3-8 weeks later completed a follow-up survey either remotely online or on a tablet in the clinic. The primary outcome of current safe medication storage practice was defined by storing BUP-NAL in a locked/latched place ‘almost always’ or ‘always’ as self-reported on the baseline survey. Secondary outcomes from the follow-up survey included: (a) feasibility of providing a lockbox for medication storage as defined by answering ‘yes’ to using the lockbox and (b) acceptability of the lockbox as defined by being ‘very satisfied’ or ‘somewhat satisfied’ with the lockbox. Participants were compensated $10 for the baseline survey and $15 for the follow-up survey. Results: Data collection is currently ongoing. 48 participants have completed the baseline survey, and 22 have completed the follow-up survey. Participants were 57% white and 40.0% Black, 25% were pregnant, had a mean age of 30 (± 4.6) years. In the past three months, 13% had experienced homelessness and 4% had experienced intimate partner violence. At baseline, 73% of participants were not practicing safe medication storage practices. The main reason reported for not safely storing medication was not having a place that latches/locks (68%). Follow-up results thus far indicate high feasibility and acceptability of the lockbox, where 95.8% used the lockbox provided by the study and 95.8% reported being ‘very satisfied’ or ‘somewhat satisfied’ with the lockbox. Preliminary effectiveness results for lockbox provision as a mode to improve safe medication storage practices are promising; at follow up, 91.7% of patients locked their medication in a locked or latched place ‘always’ or ‘almost always’ compared to only 27.1% at baseline. We expect a sample size of 60 participants by Fall 2021. Conclusions: Our findings suggest that many pregnant and parenting patients in OUD treatment do not practice safe medication storage of BUP-NAL. The provision of a lockbox for medication storage is feasible and acceptable to this population as well as a potentially effective harm reduction intervention to improve safe medication storage practices. Our study took diversity and health equity into consideration by recruiting in a diverse population with broad eligibility criteria. Additionally, the outpatient SUD clinic from which we recruited has no intake or retention requirements, seeking to make addiction treatment available to all patients. A harm reduction approach to treatment is
an avenue to reduce health disparities that needs more research. By providing all patients a safe place to store their medication upon receipt of BUP-NAL, ability to take medication as prescribed will be less hindered by health disparities such as homelessness and intimate partner violence.
16. Examining the duration between onset of alopecia symptoms to the time of seeking care

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Alopecia has negative impacts on an individual's psychosocial well-being and quality of life. These effects may be more severe in women. Herein, we examine the relationship between onset of alopecia symptoms to the time of patients seeking care. A retrospective chart review was conducted on patients at least 18 years of age with no prior history of seeking care for alopecia at Virginia Commonwealth University medical center. The Cox proportional hazard regression model was performed to evaluate the effects of the covariates age, sex, race, type of alopecia, and symptoms of alopecia on time elapsed between onset of alopecia symptoms and time to seeking care. All statistical analyses were conducted using R 4.0.5, at a significance level of 0.05. Out of 376 patients, 91% were female and 60% identified as black or African American. The Cox model showed no significant effect of patient age, sex, type of alopecia, and symptoms of alopecia on time elapsed between onset of alopecia symptoms and time to seeking care. Race of patients was identified to be associated with time elapsed between onset and diagnosis of alopecia, while gender was not. Black or African American patients were less likely to report onset of alopecia as compared to other racial groups (HR:0.566, 95% CI:0.398, 0.807). Limited access to care and historical distrust for the health care system may account for patient delay in seeking care. Mitigating this delay is crucial in preventing consequences of hair loss, such as negative impacts on self-esteem or irreversible scarring.
An integrated care model for pregnant and postpartum individuals receiving medication treatment for opioid use disorder

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Introduction: Opioid use disorder (OUD) is increasing in pregnancy and postpartum. Integrated care models co-locating treatments increase OUD treatment retention and improve outcomes, but evidence-based methods to individualize therapies are lacking. This study 1) describes service utilization by pregnant and postpartum people receiving Buprenorphine at an integrated OB/GYN-Addiction clinic and 2) explores the association between service utilization at the pregnancy-to-postpartum transition with postpartum Buprenorphine continuation. Methods: This retrospective cohort study uses longitudinal patient registry data from an outpatient OB/GYN-Addiction medicine program that prioritizes harm reduction (no service requirement to receive Buprenorphine). Analyses included participants who started Buprenorphine during pregnancy, were receiving Buprenorphine during the third trimester, and were ≥ 6-months postpartum on December 2021. Service utilization was calculated as the number of services (e.g., OB-Addiction provider visits, behavioral health, social work) used between 28-weeks gestation and 12-weeks postpartum (range 0-12 services). Bivariate and multivariate analyses assessed associations between service utilization and Buprenorphine continuation at 6-months postpartum. Results: Participants (n=42) were non-Latinx White (68%) with comorbid substance use (21%) and psychiatric diagnoses (95%). On average, participants used 6 of 12 services; prenatal care, behavioral health, and postpartum contraception were most utilized. Overall, 69% of participants continued Buprenorphine 6-months postpartum. This did not differ by level of service utilization [bivariate (p=0.23), multivariate (p=0.56)]. Conclusion: This study suggests personalized, integrated care can result in high service utilization and Buprenorphine continuation rates at 6-months postpartum in a high-risk sample. Further work is needed to explore the optimal combination of services a full year postpartum.
18. Project BETTER Acceptability: Technology-Based Educational Intervention for Women on MOUD

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Background: Women with opioid use disorder (OUD) face stressors during the pregnancy to postpartum transition that can be challenging to recovery. Women report feeling underprepared to cope with these challenges. Prenatal educational tools are needed to equip the mother-infant dyad affected by OUD for continued recovery. Tailored, technology-based educational interventions may fill this gap. Methods: Pregnant and postpartum women receiving MOUD pilot test technology-based intervention modules. Participants complete one of three modules (Postpartum Transition, Neonatal Opioid Withdrawal Syndrome, or Child Welfare Interactions) followed by a survey assessing acceptability. Acceptability is assessed by two items widely used in the field. Additionally, a 23-item comprehensive acceptability measure is being tested. The comprehensive acceptability measure aims to capture seven components of the theoretical framework of acceptability (TFA). Preliminary descriptive statistics were calculated for acceptability items. Results: Participants (n=12) were 58.3% White and middle-aged (mean 31±4 years). Most of the participants were postpartum (66.7%). Participants rated the modules as highly acceptable based on the acceptability items. Modules were rated as well liked [median=4 (IQR 3-5)] and easy to use [median=5 (IQR 5-5)]. Additional comprehensive acceptability items also scored well. Participants felt more comfortable learning from the technology-based modules than from their provider [median=5 (IQR 4-5)]. Participants believed the modules were effective to improve their own and their child’s health and well-being [median=5 (IQR 4.25-5)]. Conclusion: Findings demonstrate the acceptability of a tailored, technology-based, educational intervention for pregnant and postpartum women receiving MOUD and provide justification for further evaluation its effectiveness in a clinical setting.
19. Disparities in opioid use disorder related hospital use among postpartum Virginia Medicaid members

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Background: We report the prevalence of opioid use disorder (OUD) related hospital use during the year postpartum among Virginia Medicaid members in the years preceding the COVID-19 pandemic. We secondarily assess how prenatal OUD treatment is associated with postpartum OUD-related hospital use. We present outcomes stratified by White and Black non-Hispanic individuals to bring attention to the devastating impacts of the overdose crisis within communities of color. Methods: This population-level retrospective cohort study used Virginia Medicaid data for live infant deliveries between July 2016 and June 2019. OUD-related hospital use included overdose events, emergency department visits, and acute inpatient stays. Independent variables of interest were prenatal receipt of medication for OUD (MOUD) and other treatment components (e.g., case management, behavioral health). Both descriptive and multivariate analyses were performed for all deliveries and stratified by race (non-Hispanic White, non-Hispanic Black). Results: The study sample included 97,102 deliveries. Over a third were by Black birthing parents (n=34,742). Prenatally, 2.3% had evidence of OUD, more often among White (3.5%) than Black (0.8%) non-Hispanic birthing parents. Postpartum OUD-related hospital use occurred in 10.8% of deliveries with OUD, more commonly after deliveries by Black, non-Hispanic birthing parents with OUD (18.1%) than their White, non-Hispanic counterparts (9.7%), and this disparity persisted in the multivariable analysis (Black AOR 1.82, 95% CI 1.27-2.60). Postpartum OUD-related hospital events were infrequent for individuals receiving MOUD within 30-days prior to the event. Prenatal OUD treatment, including MOUD, was not associated with decreased odds of postpartum OUD-related hospital use in the race-stratified models. Conclusion: Postpartum individuals with OUD are at high risk for mortality and morbidity, especially Black individuals not receiving MOUD after delivery. There continues to be an urgent need to effectively address the systemic and structural drivers of racial disparities in transitions of OUD care through the one-year postpartum period.
Introduction: Opioid substance use disorder (OUD) is the top cause of death among pregnant people. However, many cease treatment after induction. Among incarcerated patients who initiate buprenorphine for OUD during pregnancy, little is known regarding treatment outcomes through the perinatal period. We sought to examine buprenorphine continuation at delivery among women who initiated while incarcerated and not incarcerated. Methods: We conducted a retrospective chart review of pregnant patients on or started on buprenorphine for OUD. We queried records for such women who engaged care with VCU at least once from January 1, 2017 to March 30, 2020 during pregnancy, and for patients whose prenatal records were outside the timeframe. Those with at least one outpatient buprenorphine prescription or inpatient order during pregnancy were included. Since most incarcerated pregnant patients underwent inpatient buprenorphine induction, we examined those who started inpatient buprenorphine induction. Results: Of 76 patients with at least 8 consecutive weeks of initial buprenorphine treatment, were pregnant at induction, started inpatient induction, and delivered at VCU, 47 were incarcerated versus 29 not incarcerated at induction. 45 (96.7%) incarcerated at induction were on buprenorphine at delivery versus 23 (79.3%) not incarcerated then (p<0.05). At delivery, 30 (39.5%) were incarcerated versus 46 (60.5%) not incarcerated. Conclusion: Starting buprenorphine at incarceration is feasible and achieves similar continuation rates to those not incarcerated at induction, and does not worsen incarceration status. Clinical practices should offer buprenorphine treatment for OUD to the incarcerated patient population, particularly those pregnant.
21. Investigating Genetic Effects on Clinical Heterogeneity in Major Depression among Women: Symptoms, Subtypes, and Cardiometabolic Traits

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Background: A diagnosis of Major Depression (MD) requires that at least 5 of 9 DSM accessory symptoms be present, although patients vary with respect to the combination of symptoms endorsed. Vegetative and reversed-vegetative symptoms, reflecting depression-related changes in weight, appetite, and sleep, seem to implicate energy balance and metabolism. Methods: Using detailed clinical information from the CONVERGE study of MD in Han Chinese women (n=10,640), we consider the evidence in support of widespread pleiotropy between MD and a range of anthropometric traits. Subsequent genome-wide association studies (GWAS) employ a ‘case-only’ approach to identify associations between single nucleotide polymorphisms (SNPs) and symptom dimensions. Results: Adverse metabolic outcomes such as obesity, CAD, and T2D showed negative genetic correlations with MD, as did C-reactive-protein levels. For sleep-related traits, we observed a positive genetic correlation between MD and insomnia. Within-case GWAS identified symptom specific signals for weight gain/loss at intergenic SNPs downstream of SGK1(P=2.37×10^{-9}). SGK1 is a compelling candidate given an established role in stress response via glucocorticoid signaling and hippocampal functioning. An additional association was seen between a SNP in SORCS2 and increased/decreased appetite(P=1.87×10^{-8}), lending additional support for hippocampal function and stress response as the encoded protein has been shown to facilitate BDNF-dependent synaptic plasticity. For reversed/vegetative symptoms, we observed associations over an extended region of MHC(P=6.1×10^{-9}). Discussion: Both specific genetic factors and aggregate genetic effects influence clinical heterogeneity in MD. The functional relevance of associated loci and robustness of polygenic effects highlight the importance of studies focusing on genetic risk factors for MD subtypes.
Barriers to binge eating intervention typically include failure to screen or limited access to treatment. Our goal was to examine feasibility and acceptability of recruiting and retaining participants into an 8-week BED group intervention implemented via Zoom. Participants were recruited from weight loss and bariatric surgery clinics. Referred patients were screened using the BEDS –7. Participants could choose to participate in baseline and end-of-treatment surveys. The group intervention integrated mindfulness, acceptance, and cognitive-behavioral skills. Measures reported include number of patients referred, enrolled, retention, and satisfaction. Preliminary change scores at end-of-treatment for key intervention mechanisms were analyzed. N=36 patients were referred and 26 were eligible. Nineteen patients enrolled, eleven consented to complete surveys. All participants were Caucasian; 95% were female (M age = 51 years; SD = 11.72). 15% (n = 3) of participants attended all 8 weeks; the average number of sessions attended was 5 (SD = 2.2). Eleven completed a satisfaction survey on skills learned, facilitators, and format using a Likert scale (1= “Not at all”; 5=“ Very Much”). 80% indicated highest satisfaction for utility of skills learned, facilitators, and group format. 40% of participants were “Very Much” satisfied with the group length. Preliminarily, significant differences pre to post treatment were seen in Binge Eating Scale scores (t9 = 3.521, p = 0.003), EDE-Q-Restraint (t8 = 2.065, p = 0.036) and EDE-Q-Weight Concern (t8 = 2.074, p = 0.036) subscales. A telehealth BED group approach using mindfulness, acceptance, and cognitive-behavioral skills appears feasible to recruit and retain participants.
23. Assessment of COVID-19 Driven Changes in an Integrated OB/GYN Addiction Treatment Clinic

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Introduction: Pregnant and parenting people are particularly vulnerable to the risks associated with both COVID-19 and opioid use disorder (OUD). Through the COVID-19 pandemic, delivery of care shifted to telemedicine, but no study has evaluated the impact of these changes on OUD treatment outcomes amongst this high priority population. Methods: A secondary analysis from a cohort of patients from an OB/GYN addiction treatment clinic research registry was conducted. Outcomes were buprenorphine continuation, total visit attendance (including behavioral health and medical-provider visits) and percentage of virtual visits for each of the 30-day periods. The three phases were: pre-COVID-19 phase (August 2019-February 2020), early-COVID-19 phase (March 2020-December 2020), and late-COVID-19 phase (January 2021-June 2021). Mixed effect regression models were performed to determine the impact of each phase. Results: Participants (N=27) were about half Black (48.2%), most had Medicaid insurance (85.2%), were unemployed (74.1%), and living in their home (66.7%) with a mean age of 31 years (SD=4.0). Buprenorphine continuation decreased across the three phases: 96.5%, 91.2%, and 74.6% of 30-day periods and visit attendance decreased: 89.5%, 79.9% and 64.6%. Percentage of 30-day periods with medical-provider visits decreased significantly only for the third phase (86.7%, 78.0%, 64.6%) and behavioral health visits decreased overall (32.3%, 19.8%, 7.2%). The virtual visits increased substantially between the first two phases and remained high during the late-COVID-19 phase (0.39%, 47.8%, 39.6%). Conclusion: Although buprenorphine continuation and visit attendance declined over the three COVID-19 phases, these outcomes remained relatively high indicating patients remained engaged in treatment throughout the pandemic. Findings support how healthcare accessibility can be achieved for vulnerable populations using a hybrid in-person and telehealth system that tailors care approaches to individuals’ needs.
Introduction: Mortality and morbidity due to opioid and substance use disorders (SUD) is increasing for women, especially during pregnancy and postpartum. Our study objectives were to assess the effectiveness of a novel pilot SUD curriculum for third year medical students (MS3) during their OBGYN clerkship. Methods: MS3 students rotated one day through a clinic that provides OBGYN and addiction medicine services. Congruent with COVID-19 limitations, students completed pre-clinic assignments and in-clinic tasks (e.g., SBIRT: Screening, Brief Intervention, Referral to Treatment) under supervision. Students remotely completed tailored pre- and post-surveys assessing SUD knowledge (1=Very knowledgeable, 5=Very unknowledgeable), confidence in clinical skills (1=Very confident, 5=Very unconfident) and SUD stigma (1=strongly disagree, 6=strongly agree). Paired t-tests assessed outcomes, with increasing scores demonstrating improvement. Results: Forty-two students completed the curriculum and surveys. Results from the assessment tools demonstrated significant improvement in stigma (4.63±0.70 vs 5.11±0.62, p=<0.01), SUD knowledge (2.42±0.79 vs 4.07±0.49, p<0.01), and confidence with clinical skills: performing SBIRT (2.44±0.96 vs 4.09±0.68, p<0.01), motivational interviewing (2.95±1.02 vs 4.16±0.72, p<0.01), integrating evidence-based medicine in clinical care (2.77±1.07 vs 4.21±0.74, p<0.01) and collecting a SUD history (3.07±1.08 vs 4.28±0.59, p<0.01). Conclusion: Our curriculum shows promise in exposing medical students to the challenges and complexities of SUD during pregnancy and postpartum, and its assessment includes quality tools to evaluate this SUD curriculum, in addition to other clinical curriculums targeting similar patient populations.
25. Evaluation of a Curriculum to Include Substance Use Disorders during Pregnancy and Postpartum

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Introduction: Mortality and morbidity due to opioid and substance use disorders (SUD) is increasing for women, especially during pregnancy and postpartum. The US medical education system has not adequately adapted to prepare its students to meet the needs of this growing patient population, notably lacking in active and experiential learning opportunities. Our study objectives were to assess the effectiveness of a novel pilot SUD curriculum for third year medical students (MS3) during their OBGYN clerkship.

Methods: MS3 students rotated one day through a clinic that provides OBGYN and addiction medicine services. Congruent with COVID-19 limitations, students completed pre-clinic assignments and in-clinic tasks (e.g., SBIRT: Screening, Brief Intervention, Referral to Treatment) under supervision. Students remotely completed tailored pre- and post-surveys assessing SUD knowledge (1=Very knowledgeable, 5=Very unknowledgeable), confidence in clinical skills (1=Very confident, 5=Very unconfident) and SUD stigma (1=strongly disagree, 6=strongly agree). Paired t-tests assessed outcomes, with increasing scores demonstrating improvement. Results: Forty-two students completed the curriculum and surveys. Results from the assessment tools demonstrated significant improvement in stigma (4.63±0.70 vs 5.11±0.62, p=<0.01), SUD knowledge (2.42±0.79 vs 4.07±0.49, p<0.01), and confidence with clinical skills: performing SBIRT (2.44±0.96 vs 4.09±0.68, p<0.01), motivational interviewing (2.95±1.02 vs 4.16±0.72, p<0.01), integrating evidence-based medicine in clinical care (2.77±1.07 vs 4.21±0.74, p<0.01) and collecting a SUD history (3.07±1.08 vs 4.28±0.59, p<0.01). Conclusion: In conclusion, our curriculum shows promise in exposing medical students to the challenges and complexities of SUD during pregnancy and postpartum, and its assessment includes quality tools to evaluate this SUD curriculum, in addition to other clinical curriculums targeting similar patient populations. A strength of our curriculum is the individualized learning and mentorship allowed by working one-on-one with the teaching attending and we expect that expanding its access would greatly benefit medical students’ educational experiences on the OBGYN clerkship.

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Background: While prenatal tobacco use is declining, prenatal cannabis use is increasing as states legalize use. Subsequently, attitudes about prenatal cannabis and tobacco use may be changing. The present study characterizes perceptions of prenatal cannabis and tobacco use among postpartum women. Methods: This secondary analysis uses data from an ongoing study of post-delivery women recruited from a postpartum unit. Participants completed an anonymous survey of demographics, substance use, and perceptions about prenatal cannabis and tobacco use. Rates of endorsement of potential outcomes of prenatal cannabis and tobacco use were examined. Results: Participants (N=64) were predominantly White (57.8%) with a mean age of 29.31 years. Women were more likely to endorse adverse consequences of prenatal tobacco use than cannabis use, including: smaller baby (92.2% vs 78.1%), reaching baby through placenta (100% vs 93.8%), affecting baby’s brain (98.2% vs 82.2%), affecting baby’s development (98.3% vs 85.1%), blocking nutrients to baby (97.9% vs 57.5%), exposing baby to chemicals (100% vs 78.8%), breathing problems (97.7% vs 60.5%), making baby addicted (75.9% vs 31.6%), and unsafe to use (94.6% vs 73.2%). Women were more likely to endorse potential benefits of prenatal cannabis use than tobacco use, including: larger baby (17.9% vs 14.3%), not dangerous (46.2% vs 15.1%), alleviating depression (73.5% vs 31.4%), increasing maternal appetite (86.1% vs 56%), and okay to use (26.8% vs 3.8%). Conclusion: Women’s endorsement of potential outcomes varied for prenatal cannabis and tobacco use, emphasizing the need for further research and education on the effects of prenatal cannabis and tobacco use.
27. Major risk factors for preterm birth influence cervical change during pregnancy

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Introduction: The length of the cervix in the midtrimester of pregnancy is a powerful predictor of maternal risk for preterm delivery. Serial measurements of cervical length (CL) throughout pregnancy provide additional information about the rate of change in CL over time, and its relationship to other maternal risk factors for preterm delivery.

Methods: Non-linear latent growth curves were developed in Mplus to model within-patient change in CL across pregnancy in a cohort of 4,474 Black women carrying 5,111 singleton pregnancies. CL was measured using transvaginal ultrasound between 8 and 40 weeks of gestation. Mediation models were developed in Mplus to test whether the association between common maternal risk factors and gestational age at delivery is mediated by change in CL during pregnancy. Results: A more rapid decrease in CL during pregnancy (steeper slope) is associated with a shorter pregnancy duration (p<0.001). A higher maternal age, higher pre-pregnancy BMI, and a higher number of previous preterm births are significantly associated with a shorter pregnancy duration (p<0.01). Change in CL was found to partially mediate the relationships between these maternal covariates and gestational age at delivery. A multiple mediation model provides evidence for the mediation of additional maternal risk factors, including gravidity, parity, previous abortions, and substance use during pregnancy. Discussion: Maternal risk factors may increase risk for preterm delivery through a cervical pathway by contributing to a more rapid rate of cervical shortening. These results can generate new approaches to therapeutic interventions and lead to improved prediction of spontaneous preterm birth.

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Violence has been exacerbated by the pandemic, resulting in a plethora of research that can be complementary and contradictory. A preliminary thematic literature search was performed using keywords such as human trafficking, IPV, sexual assault, pandemic, covid, and child abuse. This resulted in over 100 articles between 2019 and 2021. The literature review revealed common themes such as pandemics and natural disasters increase the risk for violence in women, children, and marginalized populations. Stay-at-home orders put vulnerable populations in closer proximity to the abuser. A low socioeconomic standing increases the propensity to abuse and be abused. Calls to human trafficking hotlines have increased in different areas across the U. S. Health care, police, and community partners’ response to the pandemic increase barriers to resources. Access to the internet can be a lifeline to some while, in contrast, putting others at an increased risk for exploitation. Conflicting statistical data related to IPV reports, Australia with a 5% increase, France reported a 32-36% increase, China reports a 90% increase, while the U.S reports an increase anywhere from 21-35%. U.S. research shows a 20-70% decline in reported cases of child abuse but a .7-5.3% increase in hospital admissions. Recommendations include increased screening protocols, improved collaboration with partners, and increased access to telehealth. Research continues to provide guidance and recommendations related to health care’s response. This review will evaluate the literature, present common themes, discussion contradictions, and make recommendations related to interventions and future research.
29. Alcohol use and correlates amongst pregnant women attending antenatal care in the rural Amhara region of Ethiopia

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Introduction: Pregnant women who use substances are at risk of adverse outcomes for themselves and their babies. Substance use is influenced by individual and context-specific factors, and there is a paucity of data in rural areas of low-income countries such as Ethiopia. The present study characterized prevalence and correlates of substance use amongst pregnant women in rural Amhara, Ethiopia. Methods: We conducted secondary analyses of baseline data on pregnant women enrolled at <24 weeks gestation in a prospective pregnancy cohort in Amhara, Ethiopia. Women self-reported history of use of alcohol. We calculated associations between demographics and substance use using t-tests and Pearson’s correlation coefficients. Results: Participants (n=2,244) were on average 26.4 years old (SD=5.6) and enrolled at 18.4 weeks (SD=5.9) gestational age. 1,691 women (75.4%) reported both lifetime and past month alcohol use. Among these participants, most consumed tella, a home brewed low alcohol-by-volume (ABV) beer (98.7%), and areke, a distilled high ABV spirit (31.3%). The mean number of days of alcohol use over the past month was 12.4 (SD=8.5) amongst women that consumed alcohol. Education level, literacy level, and partner’s education were negatively correlated with amount of alcohol used in the past month (p<.001). Conclusions: We found a high prevalence of alcohol use during pregnancy in rural Amhara. Additional analyses will use logistic regression to identify variables that predict alcohol use. Findings highlight the importance of screening in this population to identify women at risk for substance use.
Cultural idioms, the shortest form of cultural expression and wisdom tradition, plays a significant role in most of the traditional societies including in India. Exploring idioms in a particular socio-cultural context is the gateway to understand the perceptions of people in a given society. The primary objective of this Community Based Participatory Research with Sri Lankan Tamil refugees in India is to provide a comprehensive understanding of the ways in which Indians see its causes and effects and to testify and analyze the cultural idioms that underpin and shape its landscape. The presenter and a team of twelve trained health workers conducted semi-structured interviews with 120 families in collaboration with the Organization for Eelam Refugee Rehabilitation. The presenter used content analysis and thematic analysis to reach four overarching categories which elucidate communication with idioms and gender violence. The study results identified cultural idioms have four extensive functions: 1) let people from certain gender escape from repressions imposed upon them by society; 2) validates culture, justifying its rituals including violence and institutions to those who perform and observe them, mainly on women; 3) a pedagogic device which reinforces morals and values on women; 4) a means of applying social pressure and exercising social control on women. Our study showed that idioms used by the study participants became a tool of family communication that justified the violence against women, reinforced by the parental perceptions behind these practices and applied men’s control and violence towards women to follow these practices across generations.
31. Investigating the genetic etiology of postpartum depression in populations of East Asian ancestry

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Postpartum depression (PPD) is the most common complication of childbirth and is associated with negative outcomes for both mother and child. Although family studies have estimated the heritability of PPD at approximately 40%, it remains an understudied disorder in the psychiatric genetics field. The degree of etiological distinction between PPD and major depression (MD) is currently unknown, with some researchers speculating that an increased genetic risk for PPD actually reflects an underlying vulnerability to psychiatric illness in general, rather than PPD-specific genetic factors related to reproduction (e.g., pathways related to sex hormone regulation). A genome-wide association study (GWAS) of PPD was performed in the CONVERGE cohort (11,670 Han Chinese women) to determine whether genetic risk for PPD reflects more psychiatric- or reproductive-related processes. PPD cases (n = 895) consisted of women who screened positive for two or more episodes of MD meeting DSM-IV criteria and reported “yes” to at least one of these episodes occurring within the postpartum period, defined as up to six months after giving birth. SNP-based heritability was estimated using Genome-wide Complex Trait Analysis (GCTA) genomic-relatedness-based restricted maximum-likelihood (GREML). A significant amount of variation in PPD liability (SNP-based heritability= 0.222) was attributable to common genetic factors. The most significant variant was rs1372053 (p = 1.1 x 10⁻⁶), located in the promoter of the HIBCH gene. Further analyses applying polygenic risk scores across phenotypes aim to outline genetic relationships between PPD, MD, and reproductive-related traits (e.g., age at menarche).
Introduction: Intimate partner violence (IPV) impacts millions of people in the U.S. Prevention studies explore depression as a risk factor for experiencing IPV. Internal locus of control is a protective factor against depression. Internal health locus of control has been expanded to the healthcare setting (IHLOC) and is defined as an individual's perception that they control their health outcomes. There is a gap in determining the role of IHLOC on depression in women who experience IPV. Purpose: Our study aimed to 1) Investigate whether women with low, moderate, or high levels of depression experienced more IPV; and 2) Determine if IHLOC moderated the relationship between depression and IPV. Methods: Data were drawn from a survey of adult women of child-bearing age (18-49). Results: Our sample consisted of 524 women. An ANOVA was conducted where levels of IPV were significantly different across levels of depression F2 = 31.34, p <.001, with high levels of depression associated with the highest levels of IPV (µ = 2.50, SD = 3.32). Utilizing a regression with an interaction between IHLOC and depression, IHLOC was a significant moderator increasing the effects depression had on predicting IPV, R2 = 0.16, p <.05, 95% CI [0.01, 0.07], indicating women enduring more depression and endorsing a high level of IHLOC experienced more IPV. Discussion: This study suggests that women endorsing high depression and high IHLOC may experience more IPV. Prior research using mental health interventions improved IHLOC and reduced IPV. More studies are needed to explore these relationships.
Depression and anxiety are common psychiatric disorders, and lifetime occurrence rates are two times higher in women than men. One factor that could contribute to this phenomenon is exposure to interpersonal violence (IPV), which women are at a higher risk for. Survivors of IPV have a greater chance of developing mental illness following exposure. The purpose of this study is to examine phenotypic associations between symptoms of depression, anxiety, and IPV, and if these associations vary between men and women in a college-age sample. Data were from the Spit for Science project collected from college students (N = 7,732, 62% female). Participants' depression and anxiety symptom scores were calculated based on an abbreviated Symptoms Checklist-90 (SCL-90). IPV exposure was determined via self-report if the participant had ever experienced physical assault, sexual assault, or other uncomfortable sexual experiences. Mean depression and anxiety symptom scores were significantly higher in women than men (depression: 9.15 female, 8.04 male, t=13.03, p<2.2 x 10^{-16}; anxiety: 7.12 female, 6.21 male, t=13.07, p<2.2 x 10^{-16}). Female participants also had higher rates of exposure to IPV than males (39% vs. 33%). These results are in agreement with previous studies that have identified a greater risk for IPV exposure in college-aged women compared to men. Further analyses aim to determine if exposure to IPV is correlated with depression and anxiety symptoms and if these associations vary by sex.
34. The Impact of Stress, Acculturation, and Attachment Styles on the Sexual Health Practices of African American Women

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The current study examined stress, acculturation, and attachment styles to determine if these factors impacted sexual health practices. Participants were African American women between the ages of 18-30 across various classifications and academic majors at a Historically Black University. Women completed questionnaires via Qualtrics, including the Perceived Stress Scale, African American Acculturation Scale-33, The Revised Adult Attachment Scale, and a subsection from the Youth Risk Behavior Scale 2021. Analyses revealed that African American women under more stress were less likely to drink before sexual intercourse, converse to predicted and past findings. In addition, African American women with an anxious attachment style were more likely to have a higher number of sexual partners in the past three months. Acculturation did not affect sexual health practices in this sample. This study provided preliminary information on the impact of stress, acculturation, and attachment styles on sexual health behaviors.
The health care needs of Transgender and Gender Nonconforming (TGNC) people are complex and diverse, and there is an increasing sociopolitical need to more adequately assess and strengthen TGNC health care access. “TGNC health care,” is often sequestered from other areas of medical and public health, reduced to a need for various aspects of medical gender affirmation (e.g. hormones, body affirmation surgeries) alone, and seen as a form of “specialized” care. However, TGNC people have the same basic health care needs as the general population. As such, equitable provision of care demands the enhancement of foundational competencies within health care systems, transformation of medical and health services education curriculum, and improved patient-provider practices among health care personnel. Drawing from the 2015 U.S. Transgender Survey—the largest survey examining the experiences of transgender people in the United States (N = 27,715)—this project presents five archetypal case examples of TGNC patient experiences in health care. Using demographic frequencies that take into account attributes such as sex assigned at birth, identity terms, gender perceived by others, and gender markers on legal documents, these case examples will explore issues with electronic health records, insurance coverage, and patient advocacy within health care settings, among other important aspects of TGNC patient experiences. The resulting work will be developed into a health communication brief report, for use among medical students, care providers, and health care personnel interested in bolstering competency of structural and interpersonal gender-based barriers to the effective provision of health care.
36. Locus of Control and Family Support- Key Factors for Predicting the Patient-Provider Relationship

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Introduction: Patient-provider interactions are a key predictor of health outcomes. External health locus of control (EHLOC) (individuals’ attribution of their health to external factors e.g., health providers or powerful others) is positively associated with patients’ perception of the quality of the patient–provider relationship. Family social support (FSS) is also a significant predictor of positive health outcomes. To date FSS and EHLOC have not been explored in the same model to determine the effects on the perceived quality of the patient-provider relationship (QPPR). Purpose: This study aimed to 1) Analyze if EHLOC predicts QPPR; and 2) Determine if FSS mediated the relationship between EHLOC and the QPPR. Methods: Data were drawn from a survey of 529 adult women of child-bearing age (18-49). Results: Our sample consisted of 529 women. The regression with EHLOC predicting the quality of the patient-provider relationship was significant R2 = 0.12, p <.001, with increases in EHLOC predicting increases in the quality of the patient-provider relationship. Utilizing a regression with the mediation of FSS, FSS was a significant mediator between EHLOC and the quality of the patient-provider relationship, R2 = 0.15, p <.001, indicating as EHLOC increased, women’s FSS also increased, leading to an increase in the quality of the patient-provider relationship. Discussion: To improve the quality of the patient-provider relationship both EHLOC and FSS are relevant factors. Additionally, these constructs in a model together are nuanced therefore additional studies determining the individual and combined effects of these factors are warranted.
Child sexual abuse (CSA) is a pervasive public health issue affecting approximately 1 in 4 girls (Centers for Disease Control and Prevention [CDC], 2020). CSA has short and long-term adverse consequences including unwanted or unplanned pregnancy, physical injuries, depression, posttraumatic stress disorder, substance abuse, risky sexual behavior, and increased risk for suicide or suicide attempts (CDC). Nearly 11% of females report CSA by school employees in K12 schools (Shakeshaft, 2004). Stopping the abuse in schools requires that adult bystanders identify sexual boundary crossing behaviors and to report them. This presentation describes the results of a survey of 425 K-12 educators on their attitudes and opinions concerning appropriate and inappropriate behaviors by school employees toward students as well as their beliefs about how they or their colleagues would respond if they witnessed a colleague behaving inappropriately with a student. Results indicate that nearly all employees feel confident that they could recognize the signs of sexual misconduct in a colleague. Although able to recognize, they were less confident (although still confident) in their ability to interrupt sexual misconduct when they saw it or talk with a coworker about misconduct. Respondents had high confidence that they knew how to report misconduct to school leadership and most somewhat to strongly agreed that the behaviors they were asked to rate were inappropriate or examples of sexual misconduct. Nearly half (49.4%) of respondents said they had reported sexual misconduct with a student to school administration. About a fifth of respondents (22%) reported they had suspected a school employee of sexual misconduct with a student, but decided not to report.
Living in a disadvantaged neighborhood is associated with adverse outcomes among breast cancer patients, but the underlying pathway is still unclear. Limited evidence has suggested that accelerated biological aging may play an important role. In this study, we attempted to take the first step by evaluating the relationship between neighborhood disadvantage and biological aging biomarkers among breast cancer patients. Using a sub-sample of 906 women with newly diagnosed breast cancer at MD Anderson, we examined whether levels of selected biological aging biomarkers (allostatic load (AL), telomere length, and global DNA methylation) were affected by neighborhood disadvantage. The Area Deprivation Index (ADI) was used to measure the levels of neighborhood disadvantage. We used 17 factors that represent the activity of five physiological systems to construct the AL score. The study population was divided into low and high ADI groups. Overall, breast cancer patients from the high ADI group were more likely to be younger and non-Hispanic Black than those from the low ADI group (P<0.001), and more likely to have higher stage and poorly differentiated breast tumors (P=0.029 and 0.019). Compared to low ADI group, high ADI group had higher levels of AL and lower levels of global DNA methylation (P=0.046, P<0.001). Compared to their counterparts, high ADI group was 20% more likely to have increased AL and 51% less likely to have increased levels of global DNA methylation. Additionally, we found that global DNA hypomethylation partially mediated the association between higher ADI group with stage III and poorly differentiated tumor. In summary, we observed that neighborhood disadvantage was associated with more aggressive breast tumor characteristics, and biologically embedded in molecular level by influencing the levels of AL and global DNA methylation among breast cancer patients.
39. Double Jeopardy in Health Disparities: The Impact of Disability and Race/Ethnicity on Preconception Health

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Preconception health refers to the overall health of nonpregnant women during their reproductive years and is associated with birth outcomes and women’s health. Preconception health risks are more prevalent among women in racial and ethnic minorities as well as women with disabilities. However, there is little study examining the disparities in preconception health from intersectionality perspectives. This study aims to investigate how the intersection of disability and race or ethnicity impact preconception health among women at reproductive age. We used 2019 Virginia Pregnancy Risk Assessment Monitoring System (PRAMS) data. We chose 8 pre-pregnancy prioritized preconception health indicators suggested by the National Preconception Health and Health Care Initiative’s Surveillance and Research work group that are available in PRAMS, including depression, diabetes, hypertension, cigarette smoking, normal weight, unwanted pregnancy, multivitamin use, and heavy alcohol use. There are six questions measuring disability status, including vision, hearing, walking or climbing steps, remembering or concentrating, self-care, and communication. We defined not having disabilities if women self-reported they had no difficulties in these questions. We regrouped the intersection variable into eight categories: (1) non-Hispanic White without disability; (2) non-Hispanic White with disability; (3) non-Hispanic Black without disability; (4) non-Hispanic Black with disability; (5) Hispanic without disability; (6) Hispanic with disability; (7) other race without disability; and (8) other race with disability. Multivariable logistic regression model was conducted. Our preliminary results indicate that the intersection of disability and race or ethnicity has a meaningful impact on preconception health risk. Additionally, disparities varied by different preconception health indicators.
40. Examining the Relationship between Interpersonal Violence Exposure and Alcohol Consumption by Sex

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Experiencing interpersonal violence (IPV) has been associated with an increase in alcohol consumption and heavy drinking (Charak et al., 2015). Though females and males experience interpersonal violence at similar rates, a majority of the prior research has focused on females (Carbone-Lopez et al., 2006). The aims of the current study are to (1) assess the relationship between exposure to IPV and alcohol consumption and (2) examine whether sex moderates this relationship. Data was collected using a longitudinal study of college students ages 18 or older (N = 7,286). Any lifetime IPV exposure was assessed annually as a four-level categorical variable (none, only physical, only sexual, both physical and sexual). Alcohol consumption was measured as the maximum amount of alcohol consumed across all four years (grams of ethanol). Sex was measured as a two-level categorical variable (male, female). Approximately 40% of participants reported any exposure to IPV (62% females; 38% males). When compared to no exposure to IPV, exposure to only physical assault as well as to both physical and sexual assault were associated with a significant increase (26%; 28%) in alcohol consumption (p < 0.005). Females who were exposed to only physical assault consumed about 13% less alcohol than their male counterparts who experienced this form of IPV (p < 0.005). An association exists between IPV and alcohol consumption for those exposed to only physical assault as well as for both physical and sexual assault. However, sex only moderates the relationship for those exposed only to physical assault.