12th Annual Women's Health Research Day
VCU Institute for Women's Health
April 27, 2016

FULL ABSTRACTS
Objectives: This study examined the potential buffering effect of resilience on later stressors in protecting against future major depressive disorder (MDD).

Background: A wealth of literature demonstrates the detrimental psychological impact of stressful life events (SLEs). However, there is a wide range of responses in the face of SLEs, with some individuals being relatively unscathed, or resilient. Few longitudinal studies have been conducted to determine how psychiatric resilience relates to future risk of psychopathology following SLEs.

Methods: We used a large, representative, longitudinal twin sample of adult women (N=1765). Resilience was defined as the difference between the participants’ total score on internalizing psychopathology symptoms and their predicted score based on cumulative exposure to stressful life events (SLEs) within the same time frame. Resilience as measured at initial assessment (Time 1) was used in analysis. Individuals were also assessed for past-year SLEs and MDD at follow up (Time 2; on average 5 years later). Stepwise logistic regressions, controlling for non-independence of respondents given twin status, were conducted to examine the effects of 1) Time 1 resilience on Time 2 MDD; 2) Time 1 resilience and past-year SLEs on Time 2 MDD; 3) Time 1 resilience, past-year SLEs, and their (multiplicative) interaction on Time 2 MDD.

Results: Higher resilience at Time 1 significantly decreased the odds of developing MDD (odds ratio [OR] = 0.516; 95% confidence interval [CI] = 0.428-0.624 at Time 2, and remained significant when including past-year stressful life events (SLEs) as a predictor in the model (OR = 0.549; 95% CI = 0.450-0.671). There was not a significant interaction between resilience and past year SLE count on the odds of developing MDD.

Conclusion: Overall, these results demonstrate that resilience at Time 1 is protective against the development of future MDD, but that resilience does not interact with SLEs to alter the likelihood of developing MDD. This highlights the separate, but significant, impact of both resilience and SLEs in predicting later depression in women. Additional analyses are in progress to examine other psychiatric outcomes, such as generalized anxiety disorder.
ID: 2

**Submitting Author:** Ely, Lisa, Efficacy of the Postoperative Visit for Benign Gynecologic Ambulatory Procedures, Obstetrics & Gynecology, Medicine, lisa.ely@vcuhealth.org, 301-335-4453

**Title:** Efficacy of the Postoperative Visit for Benign Gynecologic Ambulatory Procedures

**Authors:** Lisa Ely, Aaron Goldberg

**Objectives:** The objective of this study was to examine the utility of a routine postoperative visit for benign gynecologic ambulatory procedures.

**Background:** The value and efficacy of a routine postoperative visit after benign gynecologic cases remains unclear. Patients expend resources to obtain transportation and sacrifice working hours in order to attend their postoperative visits.

**Methods:** A retrospective chart review of 233 patients who underwent a benign gynecologic ambulatory procedure at VCU Medical center was performed. Demographic data, postoperative phone call use, postoperative visit compliance, and interventions performed were collected.

**Results:** A total of 23 patients were included for analysis (35 perineal and extra-abdominal procedures, 52 intra-abdominal procedures and 146 intrauterine procedures). Postoperative visit compliance was 71%, 79% and 69%, respectively for each surgical type. Intervention rates were 48%, 57% and 50% for each surgical type respectively, including pain management, contraceptive counseling, management of abnormal uterine bleeding, incision site infection, endometritis, vaginal discharge, and non-gynecologic problems. Physical exam revealed significant findings only in 27%, 37% and 17% of cases for perineal, intra-abdominal and intrauterine procedures, respectively.

**Conclusion:** Routine postoperative visit after benign gynecologic cases demands significant time and travel expense from patients. Patient compliance with postoperative visits was 69-79%. Of these patients, only 48-57% of all patients require any intervention, and a minority of patients required a physical exam to delineate their complaint. The majority of patients had working phone numbers and were available for a postoperative phone call.
Objectives: The present study aimed to examine the moderating and mediating effects of perceived social support on the association between pre-college SA and college-onset victimization within a large sample of undergraduate students (N=6132).

Background: Previous exposure to sexual assault (SA) is associated with increased risk of future victimization, which is linked to higher rates of psychopathology. Furthermore, social support has been demonstrated to influence SA and SA revictimization.

Methods: The PLUM procedure in SPSS was used to evaluate the hypothesized moderating effect of perceived social support on the relation between pre-college SA and college-onset victimization, with individual regressions conducted in a hierarchical fashion. Gender and race were entered in the first regression predicting college-onset victimization. Pre-college SA and the centered social support variable were entered in the second regression. Lastly, the interaction term was added in the final regression. Models were compared by taking the difference between their -2 log likelihoods and using this as the test statistic in a Chi square test with 1 df. A weighted least squared mean and variance adjusted (WLSMV) mediation model was used to examine the effect of pre-college SA on college-onset victimization, both directly and indirectly through social support. Covariates consisted of gender and race and were included at the level of the full regression model.

Results: Approximately 20% of the sample endorsed college-onset SA. Consistent with the literature, pre-college SA significantly predicted college-onset SA in the present study (b=1.44, p<.001). Furthermore, social support significantly mediated the relation between pre-college SA and college-onset SA (p<.001). However, social support was not a significant moderator (p=.19) of this relationship, which suggests that social support may serve more as a mediating mechanism through which pre-college SA predicts college-onset SA, as opposed to a moderating influence on the relation between prior SA and college victimization.

Conclusion: To our knowledge, this is the first study to demonstrate that social support mediates the relationship between pre-college SA and post-college SA. Given ubiquitous prevalence of SA among college populations, in addition to high rates of SA revictimization, identification of factors that influence repeated SA within this population is essential.
Title: A conceptual analysis of body image as related to sexual health in clinical psychological, medical, and nursing literature

Authors: Christina M. Wilson, MS, RN, WHNP-BC, School of Nursing, Virginia Commonwealth University; Sarah J. Javier, MS, Department of Psychology, Virginia Commonwealth University; Deborah McGuire, PhD, RN, FAAN, School of Nursing, Virginia Commonwealth University

Objectives: The purpose of this concept analysis is to define the concept of body image as related to sexual health throughout clinical psychological, medical, and nursing literature. This is an interdisciplinary effort that serves to help practitioners have a more focused discussion on the etiology and subsequent outcomes of body image and sexual health in their patient populations.

Background: Throughout patient-centered studies, the concept of “body image” has been linked to sexual health indicators such as condom use self-efficacy, sexual satisfaction, and sexual desire. However, definitions of “body image” have been largely inconsistent throughout clinical literature, and alternate concepts (e.g., body dissatisfaction, body esteem) have often been used as proxy measures. A lack of common conceptualization of this term may be problematic and may ultimately delay improvement in treatment progress and quality of life.

Methods: We utilized Rodger’s evolutionary method of concept analysis for the current study. A set of predetermined search criteria was established and literature from psychology and psychiatry, general medicine, and nursing databases (i.e., Medline, PsycInfo, CINAHL) was reviewed. After determining a final sample, we analyzed articles to identify attributes, antecedents, and consequences of the concept, as well as surrogate terms and related concepts.

Results: We are in the process of completing this analysis, but based on preliminary results, we expect to find the following:

1. That a major antecedent of negative body image would be presence of a health condition that affects gynecological body parts
2. That indicators such as low sexual desire, and higher sexual risk behaviors would be a consequence of negative body image
3. That poor sexual health resulting from negative body image would be correlated with other behavioral health indicators such as emotional distress

Further, we expect to find that body image will be framed negatively, and that body image will focus more on the individual’s self-perception of appearance.

Conclusion: Implications for practitioners include the need to address body image issues comprehensively throughout a patients treatment regimen and to address sexual health issues that may accompany a change in appearance.
Submiting Author: Jones, Heather, Engagement in Prenatal Behaviors and Quality of Life Relate to Attention-Deficit, Psychology, Humanities & Sciences College of, hjones7@vcu.edu, 804-828-5641

Title: Engagement in Prenatal Behaviors and Quality of Life Relate to Attention-Deficit/Hyperactivity Symptoms in African American Women

Authors: Heather Jones, Psychology, VCU; Stephanie Wilson, Psychology, VCU; Laura Eddy, Psychology, VCU; Dace Svikis, Psychology, Psychiatry, Obstetrics/Gynecology; Nicole Karjane, Obstetrics/Gynecology

Objectives: The purpose of the present study was to examine associations among ADHD symptoms, quality of life, and prenatal behaviors in African American women.

Background: Given that attention-deficit/hyperactivity disorder (ADHD) in adults has only recently become a focus for researchers, there is a lack of empirical data on pregnant women with ADHD symptomatology. Pregnant women represent a vulnerable population in the United States due to potential harm to their fetuses. Mental health problems may put such women at further risk. For women with symptoms of ADHD, these behaviors may lead to substandard prenatal care, which may ultimately impact perinatal infant and maternal outcomes.

Methods: Self-report measures of ADHD symptoms, quality of life, and prenatal behaviors were administered to 116 pregnant African American women (M age = 27.27, SD = 5.76) presenting to an urban women’s clinic. Prenatal behaviors measured included those related to nutrition, physical strain, exercise, and nicotine/caffeine use.

Results: Results indicated that inattentive symptoms related to lower levels of proper nutrition (r = -.245, p = .011) and increased physical strain (r = .220, p = .023). Impulsive symptoms were related to increased physical strain (r = .227, p = .004). Hyperactivity was positively correlated with caffeine use (r = .197, p = .048) and negatively correlated with taking a prenatal vitamin (r = -.248, p = .012). All three ADHD symptom clusters significantly related to poorer quality of life (r’s ranging from .27-.68, p’s < .01).

Conclusion: This is the first study to find that, within a sample of African American women, symptoms of ADHD relate to both a women’s ability to make appropriate choices during pregnancy and their quality of life. Findings indicate that screening for ADHD symptoms as part of prenatal care may be useful. Such screening would allow clinicians to better monitor pregnant women with ADHD through the duration of their pregnancy. Future research should work to develop appropriate interventions to improve the ability of women with significant ADHD symptoms to engage in optimal prenatal care and potentially improve maternal and child outcomes.
ID: 6

Submitting Author: Gretchen Neigh, Virginia Commonwealth University

Title: Mechanisms of Sex Differences in Susceptibility and Resiliency to Stress Exposure

Authors: Gretchen Neigh, Anatomy & Neurobiology, Virginia Commonwealth University; Sean Kelly, Physiology, Emory University; Mandakh Bekhat, Neuroscience Graduate Studies Program, Emory University; Anisha Kalindindi, College of Arts and Sciences, Emory University; Sydney Rowson, Molecular Pharmacology Graduate Studies Program, Emory University

Objectives: We hypothesized that females would be susceptible to depressive-like and anxiety-like behavior following chronic adolescent stress and demonstrate concomitant alterations in the HPA axis. Conversely, we hypothesized that males would be susceptible to metabolic and immune changes following chronic adolescent stress.

Background: We hypothesized that females would be susceptible to depressive-like and anxiety-like behavior following chronic adolescent stress and demonstrate concomitant alterations in the HPA axis. Conversely, we hypothesized that males would be susceptible to metabolic and immune changes following chronic adolescent stress.

Methods: Adolescent male and female rats were exposed to a chronic mixed modality stress paradigm and behavior and physiology were assessed at the end of adolescence and in adulthood. Behavioral testing examined depressive-like, anxiety-like, and social behavior. Function of the HPA axis was assessed at the output level of corticosterone concentrations in the blood and at the molecular regulation level through analysis of the glucocorticoid receptor and its cochaperones in the brain. Immune function was assessed in response to a challenge with lipopolysaccharide.

Results: Female rats exposed to chronic adolescent stress demonstrated elevations in anxiety-like behaviors and depressive-like behaviors both at the end of adolescence and months later in adulthood. In addition, females with a history of chronic adolescent stress had prolonged HPA axis activation following acute stress challenge that appeared to be mediated by a disruption in negative feedback. While males did not demonstrate this pattern, they did exhibit elevated weight gain in adulthood and an exaggerated neuroinflammatory response to immune challenge.

Conclusion: The collective results of these studies suggest that males and females adopt divergent patterns of adaptation following developmental perturbations that lead to both susceptibility and resilience depending on the domain examined. These contrasts may help to inform the collective understanding of individual differences in stress-induced pathology and guide titrated personalized health strategies.
Title: An examination of the etiologic overlap between the genetic and environmental influences on insomnia and common psychopathology

Authors: Mackenzie, Lind, Department of Psychiatry, Virginia Institute for Psychiatric and Behavioral Genetics, VCU; Sage, Hawn, Department of Psychiatry, Virginia Institute for Psychiatric and Behavioral Genetics, VCU; Christina, Sheerin, Department of Psychiatry

Objectives: This study examined the genetic and environmental overlap between insomnia and common psychopathology in a large twin sample, testing for sex differences.

Background: Insomnia is comorbid with internalizing and externalizing psychiatric disorders. However, the extent to which the etiologic influences on insomnia and common psychopathology overlap is unclear. There are limited genetically-informed studies of insomnia and internalizing disorders, and few studies of overlap exist with externalizing disorders. Further, most existing studies have not formally examined sex differences.

Methods: We utilized data from the Virginia Adult Twin Studies of Psychiatric and Substance Use Disorders (total n=7500). Insomnia, internalizing disorders (major depressive disorder [MDD], generalized anxiety disorder [GAD]), and alcohol abuse and dependence (AAD) were measured at two time points, while antisocial personality disorder (ASPD) was measured once. Cholesky decompositions were performed in OpenMx and longitudinal measurement models were run on available phenotypes (MDD, GAD, AAD) to reduce measurement error.

Results: The latent genetic influences on insomnia were shared completely with MDD, and there were significant quantitative sex differences: Insomnia was 55% heritable in females but only 38% in males. There was complete genetic overlap between GAD and insomnia (insomnia heritability = 48%), without sex differences. For these phenotypes, there was modest unique environmental overlap (9%[F] and 37%[M] for MDD and 37% for GAD). In contrast, there was less genetic overlap between insomnia and externalizing disorders (no quantitative sex differences), with 20% of insomnia’s heritability shared with AAD and 22% with ASPD. Unique environmental overlap was negligible for insomnia and externalizing conditions.

Conclusion: There was evidence for complete genetic overlap between insomnia and both internalizing disorders, suggesting that there are no insomnia-specific genes and investigation into environmental factors is important for understanding the development of insomnia (vs. internalizing conditions). Notably, there were quantitative sex differences in the MDD model, indicating that genes may be more important in the development of both disorders for females. The modest overlap between insomnia and externalizing disorders indicates that these disorders are etiologically related but largely genetically distinct.
Title: Inhibition of Fibronectin Fibril Assembly reduces TGF-β induced EMT in Breast Cancer Cells

Authors: Karishma Mehta, Department of Biology, VCU; Marheen Azam, Department of Biomedical Engineering, VCU; Lauren Griggs, Department of Biomedical Engineering, VCU; Chris Lemmon, Department of Biomedical Engineering, VCU; Lynne Elmore, Department of Pathology, VCU

Objectives: Recognizing that breast tumors often express high levels of fibronectin (FN), and breast cancers with a dense fibrotic stroma are associated with a poorer prognosis, we hypothesized that blocking FN fibril assembly will interfere with EMT, and thus potentially inhibit breast cancer progression.

Background: Breast cancer is the most common form of cancer found in the female population, with one in eight women being diagnosed in their lifetime. Of those diagnosed, 17% will succumb to the disease almost exclusively due to metastases. Epithelial mesenchymal transition (EMT) has been implicated as a critical early step in the metastatic process. This transition is characterized, in part, by an upregulation of mesenchymal markers (including fibronectin) with a concomitant reduction in epithelial-associated genes.

Methods: HMT-3522 T4-2 human breast cancer cells when co-injected with breast adipose-derived mesenchymal stem cells (MSCs) into immunocompromised mice form tumors that are larger, more invasive, and have more abundant FN-rich stroma compared to pure T4-2 tumors. Tissue sections of mixed versus pure xenografts were immunohistochemically stained for vimentin (mesenchymal marker) and E-cadherin to assay for the EMT of T4-2 cells in vivo. Since MSCs in response to breast cancer conditioned media express high levels of TGF-β, a growth factor that readily triggers EMT in normal and immortal cells, cultures of T4-2 cells (along with MCF-10A cells as a positive control), were treated +/− 2ng/ml TGF-β for 48 or 72 hours and then examined by immunofluorescence for E-cadherin, FN, and actin stress fibers. RNA was isolated and qRT-PCR performed to access expression levels of multiple EMT-associated genes.

Results: Within T4-2/MSC mixed xenografts a subset of cells were intensely stained for vimentin and exhibited breakdown of adherens junctions; of note, these putative “transitioning” T4-2 cells tended to be in close association with extracellular matrix. Cultures of T4-2 and MCF-10A cells consistently exhibited upregulation of FN, Snail and N-cadherin mRNAs. Surprisingly, TGF-β treated T4-2 cells also exhibited an upregulation of E-cadherin mRNA. As previously reported for MCF-10A cells, T4-2 breast cancer cells in response to acute TGF-β treatment exhibited pronounced stress fibers (Phalloidin) within cells, widespread breakdown of adherens junctions (E-Cad) between cells, and abundant FN fibrils outside the cells.

Conclusion: Collectively our data suggest that TGF-β triggers EMT in T4-2 human breast cancer cells. Studies are currently ongoing to test whether blocking FN fibril assembly with FUD is sufficient to interfere with EMT, while future studies relying on our mixed xenograft model are planned to investigate whether inhibition of FN fibrillogenesis can block breast cancer progression in vivo.
**ID:** 9

**Submitting Author:** Schreiber, Dana, Graduate Student, Psychology, Humanities & Sciences College of, schreiberdr@vcu.edu, 215-285-5363

**Title:** Depressive Symptoms Predict Stress Eating in Post-Menopausal not Pre-Menopausal Women

**Authors:** Dana R. Schreiber, B.S., Department of Psychology, Virginia Commonwealth University; Natalie D. Dautovich, Ph.D., Department of Psychology, Virginia Commonwealth University

**Objectives:** The current study explores how depressive symptoms influence stress eating in a sample of pre-menopausal and post-menopausal women.

**Background:** Women in midlife are at risk for depression, which increases during and after the menopausal transition. Depressive symptoms during this time are associated with negative eating behaviors (i.e., overeating, stress eating) which put women at risk for the development of negative health outcomes such as obesity and metabolic syndrome. While women in the menopausal transition are more at risk for developing depressive symptoms, limited work has explored the impact of depressive symptoms on stress eating in midlife women across the menopausal transition.

**Methods:** The study is an archival analysis of data from the Midlife in the United States-II study (MIDUS-II), Project 1. The sample consisted of 594 premenopausal women (M=42.69, SD=5.12) and 754 post-menopausal women (M=62.52, SD=8.73). Pre-menopausal status was defined as having regular periods in the last 12 months. Post-menopausal status was defined as not having a period in the last 12 months due to menopause. Depressive symptoms were measured with the World Health Organization Composite International Diagnostic Interview Short Form (CITI-SF). Stress eating was measured with the COPE Inventory.

**Results:** Hierarchical linear regression analyses demonstrated that depressive symptoms significantly predicted stress eating in post-menopausal women after controlling for selected covariates, $\beta=.082$, $F(6, 678) = 31.33$, $p =.021$. Depressive symptoms did not predict stress eating in pre-menopausal women, $\beta=.074$, $F(6, 547) = 16.59$, $p =.079$.

**Conclusion:** Results indicate that menopausal status moderates the relationship between depressive symptoms and stress eating such that depressive symptoms predict stress eating for women in the post-menopausal stage but not women in the pre-menopausal stage. Consistent with prior research demonstrating that post-menopausal women are more likely to be depressed than pre-menopausal women, current results highlight the role of depressive symptoms for subsequent health behaviors (i.e., eating behavior). As depressive symptoms play a unique role in stress eating for post-menopausal women, intervention targeted to treat depression may have important health implications for women in this stage of life. Additional work is warranted to further explore mechanisms that influence this relationship.
Title: Evaluating Post Sexual Assault Follow Up Compliance: A VCUMC Quality Improvement Project

Authors: Jean A Cheek RN, MSN, SANE-A; Caitlin L. Shiflett, MSW; Christi Adams, RN, MS, CCRN, CCNS; Kathy Baker, PhD

Objective: To calculate follow up compliance rates for sexual assault survivors at the VCU Medical Center SANE program and compare our compliance rates with national averages as reported in the literature.

Background: In the United States, one in six women will be sexually assaulted in their lifetime. Following a sexual assault, Sexual Assault Nurse Examiner (SANE) programs provide medical care, a forensic exam, post-assault information, and schedule follow up appointments for medical and mental health. Follow up appointments are critical after a sexual assault because survivors are at high risk for suicidal ideations, depression, post-traumatic stress disorder, sleep disturbance, prophylactic medication non-compliance, substance abuse, and high risk sexual behavior. Unfortunately, only 35-55% of sexual assault survivors attend their medical or mental health follow up appointments. Although follow up care is important to a sexual assault survivor’s physical and mental health, reports estimate only 26% of SANE programs track follow up compliance rates in their patient populations. Due to the medical and mental health needs of sexual assault survivors, it is important for SANE programs to evaluate follow up compliance rates and investigate interventions aimed at reducing barriers to follow up in order to help improve health outcomes in sexual assault survivors.

Methods: We reviewed the literature to obtain average compliance rates reported nationally and we conducted a retrospective chart review for years 2013 and 2014. We determined the frequency of: sexual assault cases, those referred for follow up, follow up appointments completed, and calculated compliance rate per year.

Results: The literature review revealed national follow up compliance rates ranging from 35-55%. VCU SANE program follow up compliance rates post sexual assault were 38% (19/50) and 40% (17/42), in 2013 and 2014, respectively.

Conclusion: This quality improvement project revealed that VCU follow up compliance rates are comparable to the national average and the literature review revealed few interventions shown to improve follow up compliance rates. We propose several research ideas to help fill this gap in the literature. By improving follow up compliance rates post sexual assault, we can provide additional support to survivors and potentially improve mental and physical health outcomes.
ID: 11

Submitting Author: Coles, D. Crystal, Project Coordinator, MIECHV Expansion Grant, Other, Social Work, colesdc@vcu.edu, 804-827-156

Title: Enhancing Behavioral Health Risk Screening and Referral for Pregnant and Postpartum Women: A Community Stakeholder Perspective

Authors: D. Crystal Coles, PhD, LSCSW, Social Work, VCU; Sarah Kye Price, PhD, MSW, MS, Social Work, VCU

Objectives: Articulate areas of opportunity and challenge regarding community readiness with integration of behavioral health risk screening at first point of contact with pregnant and postpartum women

Background: The Behavioral Health Integrated Centralized Intake (BHCI) project is multi-site MIECHV funded CBPR initiative emphasizing coordinated systems of care and a consistent point of entry into home visiting for pregnant and postpartum women. Four communities conceptualized and implemented a streamlined and centralized access point to maternal and child health home visiting services into which behavioral health risk screening was seamlessly integrated.

Methods: Participants from representative stakeholder groups were recruited across all four sites (N=30) for in depth interviews during both the formative and implementation stages of BHCI. We utilized open coding and constant comparison to identify themes related to the development and sustenance of community partnerships; themes were compiled into an exhaustive case study of the investigated phenomena that was presented back to each community.

Results: Seven primary themes emerged from the data, highlighting community strengths and barriers to the centralized intake process. Themes included varying power dynamics in partnerships, community collaboration readiness, and the degree of emphasis on client experience either which hindered or strengthened the BHCI implementation in each community.

Conclusion: This formative evaluation utilizing participatory case study development opened dialogue among community partners regarding the complexity of community partnerships, and the impact of that complexity on addressing behavioral health risk of pregnant and postpartum women. Community barriers were brought into the collaborative conversation and shifts were made in services and partnership structures that significantly improved both outputs and client outcomes of the project. This strategy may be an important tool for augmenting the collaborative potential of community partnerships.
Objectives: This project utilizes the National Intimate Partner and Sexual Violence Survey to expand previous research by examining the physical injuries and mental health consequences of intimate partner violence and the health care systemic response to it, for bisexual women (as compared to both lesbian and heterosexual women). Here, IPV is defined as any emotional, psychological, physical, or sexual abuse in addition to control violence and stalking, perpetrated by a dating, sexual, cohabitant, married or formerly married partner. Individuals who experienced abuse were asked follow up questions, including “Did you need medical care because of (this incident)? Were you able to receive that medical care? Did you need a community organization/advocate care after (this incident)? Were you able to receive that care” And inquiries about talking to police/law enforcement officials, religious services, and/or psychological/counselors who were not necessarily medically treating you injuries. Moreover, this project aims to examine the variables associated with disparities in intimate partner violence injuries and health care service-seeking behaviors between bisexual women and lesbian/heterosexual women.

Background: Between 1989-1996, multiple agencies both domestic and international began a campaign to end violence against women, because it was a public health problem and health care silent epidemic. What resulted is a large body of literature on the negative health outcomes of physical and sexual intimate partner violence (IPV) on women abused by men: higher levels of both acute and chronic physical health problems, lower levels of receiving needed medical services, and poorer health care provider relationships than those who are not abused.

Methods: This project employs both descriptive and inferential statistical techniques using Stata/SE 14 quantitative data analysis software for large datasets. Namely, this study uses two sample tests of proportions to test whether or not the same proportion of lesbian, bisexual, and heterosexual/straight women suffer injuries from IPV victimization, seek out medical care, or seek out other service providers. Further, binary logistic regression models assess some of the reasons for disparities in injury rates and health care seeking between bisexual women and lesbian/heterosexual women: e.g. race ethnicity, social class, age, dis/ability status, and sex of the perpetrator, among others.

Results Similarities and differences in victimization and injury rates are discussed namely, a significantly higher proportion of bisexual women report both victimization and injury and suggestions for health care providers and policy makers are made based on the findings; bisexual women are less likely to seek out physical health care services but more likely to discuss victimization with psychological service providers; bisexual women are more likely to be abused by an opposite-sex partner than a same-sex partner; and race ethnicity, age, and dis/ability status emerge as important predictors of bisexual women's increased risk of injury and decreased likelihood of seeking out health care services.

Conclusion: Importantly, the findings inform an updating of the minority stress model of health disparities to reflect emerging theories of biphobia and binegativity, which will aid in health care providers' screenings for IPV. Namely, researchers and health care providers/advocates must understand the unique stigma and shame associated with identifying as bisexual and/or being socially understood as bisexual behaviorally, the various relationship-based risk factors associated with this stigma, and how this stigma impacts bisexual women's interactions with health care services.
Title: The Perfect Storm: Interaction of Stress and Anxiety as Predictors of Depressive Symptoms in Pregnant African American Women

Authors: Nancy Jallo, PhD, FNP-BC, WHNP-BC, RNC, School of Nursing, VCU; R.K. Elswick, Jr., PhD, NREMT-B, School of Nursing, VCU; Patricia Kinser, PhD, WHNP-BC, RN, School of Nursing, VCU; Saba Masho, MD, MPH, DrPH, Division of Epidemiology, Department of Family Medicine and Population Health, Dept of Obstetrics and Gynecology VCU Institute for Women's Health, School of Medicine, VCU; Sarah Kye Price, PhD, MSW, MS, School of Social Work, VCU; Dace S. Svikis, PhD, Psychology, Psychiatry, and Obstetrics/Gynecology, VCU Institute for Women's Health, VCU; Susan Kornstein, M.D, Institute for Women's Health, VCU.

Objectives: To determine the prevalence and predictors of depressive symptoms among pregnant African American women at 14-17 weeks gestation and to examine the interactions between predictor variables.

Background: Antepartum depression is a major health concern due to the negative effects on maternal and infant health. High prevalence of depressive symptoms reported among minority pregnant women suggest that pregnant African American women may be a particularly vulnerable group to depression. Given the deleterious nature of depression, there is a great need to identify women at risk.

Methods: Secondary data analysis of 59 pregnant African American women between 14-17 weeks gestation participating in a stress intervention study. Study measures collected at baseline prior to randomization included Center for Epidemiologic Studies-Depression (CES-D); Perceived Stress Scale (PSS); Numeric Rating Scale of Stress (NRSS); State Anxiety Scale (STAI Form Y-1) and demographic form. Descriptive statistics and one sample t-test were used to analyze the data. A stepwise model building strategy provided a model for predicting depressive symptoms (CES-D).

Results: Two-thirds (66%) of sample reported CES-D score > 16 indicative of depressive symptoms. Sample mean of 20.22 was significantly greater than the suggested cut-off of 16 (t (58) = 3.14, p < 0.01). The predictor p values were age (p=0.039), gravidity (p=0.948), PSS (p<0.001), STAI (p<0.001), NRSS (p=0.003), EGA (p=0.574), years of education (p=0.686), and income (p=0.584). Age, PSS, STAI and NRSS were included in the stepwise modeling. Using a mixed-forward stepwise approach, PSS and STAI were selected. The interaction between PSS and STAI was included in the model and was a statistically significant predictor with a coefficient of determination R2 of 0.68.

Conclusion: Majority of participants met the CES-D criteria for depressive symptoms. Interaction between PSS and STAI scores was found to predict CES-D scores. High levels of maternal perceived stress coupled with high anxiety levels predicted the greatest risk for depressive symptoms in this population. Pregnant women who experience more stress in their lives may be more likely to have depressive symptoms particularly if they are also experiencing anxiety. Study results highlight the importance of early screening of pregnant African American women for depressive symptoms, perceived stress and anxiety.
Submitting Author: Sydney Kelpin, Department of Psychology; Virginia Commonwealth University

Title: Gender Differences in Sample Representativeness in a Clinical Trial of SBIRT

Authors: Sydney Kelpin, Department of Psychology; Virginia Commonwealth University; Steve Ondersma, Department of Psychiatry; Wayne State University; Gabriela Villalobos, School of Medicine, Virginia Commonwealth University; Dace Svikis, Department of Psychology and Institute for Women’s Health; Virginia Commonwealth University

Objectives: The present study sought to identify demographic and psychosocial characteristics associated with male and female patient interest and willingness to participate in a randomized clinical trial focused on heavy/problem drinking and drug use.

Background: The National Institutes of Health (NIH) has made translational research a top priority, beginning with the signing of the NIH Revitalization Act in 1993 that mandated the inclusion of women and minorities in randomized clinical trials (RCT) (Freeman et al., 1995). While more women are participating in RCTs, gender differences in factors influencing patient decisions to participate in research may still exist and impact generalizability of study findings.

Methods: The present study analyzed data from N=1,338 primary care patients (N = 702 females) who screened positive for heavy/problem substance use and were offered participation in a 4-arm clinical trial of SBIRT. The sample was further divided into those consenting to the RCT (N=713; consenters) and those choosing not to participate (N=625; non-consenters). Male and female consenters and non-consenters were compared separately, looking at a variety of demographics, psychosocial and medical variables using chi-square for categorical and t-tests for continuous variables.

Results: While rates of consent did not differ for men (52.5%) and women (53.8%), gender differences were found in characteristics that distinguished consenters from non-consenters, While male consenters were more likely to be unemployed (58% vs. 42%, p=.02) and report a maternal history of alcohol abuse (64% vs. 36%, p=.03) than male non-consenters, females consenting to the RCT were more likely to live with someone who had a drug problem (68% vs. 32%, p=.001) and report recent (past 30 day) drug use (66% vs. 34%, p<.001) than females who chose not to participate in the RCT. Both male and female consenters were more likely to endorse prescription drug misuse (males=62% vs. 38%; p=.03; females=63% vs. 35%, p=.001) than non-consenters. Subsequent multivariate analyses will examine these predictors of research participation in combination, looking separately at males and females.

Conclusion: The present study examined whether characteristics associated with the decision to enroll in a research study of heavy/problem drinking or drug use differed for male and females. Differences were found, with male consenters more likely than non-consenters to report unemployment and maternal alcohol abuse and female consenters more likely than non-consenters to report personal and home environment drug use. These findings will help to inform ongoing analyses of RCT outcomes in this at risk patient population.
ID: 15

**Submitting Author:** Kwitowski, Melissa, Counseling Psychology Graduate Student, Psychology, Humanities & Sciences College of, kwitowskima@vcu.edu, 440-667-7211

**Title:** Appearance and Health Related Messages in Tweens Television Programming

**Authors:** Melissa A. Kwitowski, Department of Psychology, Virginia Commonwealth University; Courtney C. Simpson, Department of Psychology, Virginia Commonwealth University; Rachel L. Boutté, Department of Psychology, Virginia Commonwealth University; Rachel W. Go

**Objectives:** The current study sought to describe prevalence and content of appearance and health related messages and assess gender differences and similarities in these messages.

**Background:** Tweens (ages 9-14) are particularly vulnerable to the opinions and behaviors presented in media messages.

**Methods:** This study explored the appearance and health-related messages in the five most popular television shows for tweens on the Disney Channel. A coding instrument was developed and shows were analyzed for content related to weight, appearance, exercise, and food. Using a multiple-pass approach, relevant content in three episodes from the most recently completed seasons of each show were recorded and coded.

**Results:** Appearance related situations occurred in 100% of the episodes; these most frequently mentioned attractiveness/beauty (33.7%). Food related incidences were also present in 100% of the episodes; typically (82.0% of the time), these situations were weight neutral (i.e., no mention of unhealthy weight practices or dieting). Exercise related incidences occurred in 53.3% of the episodes; the majority expressed resistance to exercise (40.0%). Weight related incidences occurred in 40.0% of the episodes; 42.9% praised the muscular ideal. Women were more likely to initiate appearance incidents, chi-squared (1) = 5.96, p = .015, Cramer’s V = .123, and men were more likely to initiate exercise statements, chi-squared (1) = 19.48, p < .001, Cramer’s V = .222. Further, target gender influenced the content of weight related statements, chi squared (3) = 7.92, p = .048, Cramer’s V = .890. Only men were targets of fat/overweight stigmatization and muscular praise, and only women were targets of thin praise. Target gender also influenced the content of exercise related incidents, chi-squared (4) = 12.00, p = .011, Cramer’s V = 1.00. Only men were targets of comments regarding resistance to exercise or exercise as a positive behavior, and only women were targets of comments endorsing engaging in a continuous exercise regimen. The audience responded with laughter to the majority of all incidences recorded.

**Conclusion:** Results demonstrate the potentially detrimental content present in television programming aimed at tweens. In-depth analysis of television programming seeks to understand potential public health implications of appearance related messaging for this impressionable population.
Objectives: The primary objective is to investigate whether gender differences exist for binge eating and binge drinking outcomes while also comparing outcomes to associated maternal and paternal problem drinking histories.

Background: The onset of problems associated with binge eating and drinking behaviors often begins in college age individuals. Binge Eating Disorder (BED) has emerged as the most prominent eating disorder, and recently gained a diagnostic code in the 5th edition of the Diagnostic and Statistical Manual of Mental Disorders. Research supports that there may be heritable associations for those who engage in binge eating and/or binge drinking behaviors. Research also supports that more college age males binge drink than females, however most literature indicates that binge eating rates are consistent across genders.

Methods: A secondary data analysis of approximately 7000 college age youth will be utilized to investigate whether gender differences exist for binge eating and binge drinking outcomes and associated maternal and paternal problem drinking histories.

Results: Students who report a maternal or a paternal history of problem drinking are significantly more likely to report binge eating and binge drinking. Students’ binge eating and drinking outcomes as they relate to maternal and paternal problem drinking histories will be further assessed for significant differences across genders.

Conclusion: BED is linked to an increased risk for physiological and psychological disorders. However, understanding surrounding the etiology of BED requires further research. This analysis indicates that those who report a history of maternal or paternal problem drinking are more likely to demonstrate binge eating and/or binge drinking behaviors in college, and differences in reported binge drinking and eating outcomes across genders will be further investigated in the current sample.
Submiting Author: Naidoo, Diana, Predictors of the Efficacy of a Guided Imagery Stress Management Intervention in, Obstetrics & Gynecology, Nursing, 732-763-7081

Title: Predictors of the Efficacy of a Guided Imagery Stress Management Intervention in Pregnant African American Women

Authors: Diana D. Naidoo, RN; Nancy Jallo, PhD, FNP-BC, FNP-BC; Leroy Thacker, PhD

Objectives: Purpose was to identify predictors of the efficacy of a GI intervention for stress management in pregnant African American women.

Background: Maternal stress and related symptoms of anxiety, fatigue and depressive symptoms are associated with threats to maternal well-being and negative birth outcomes especially among pregnant African American women. Recent randomized clinical trial demonstrated significant reductions in these behavioral factors in this population using a guided imagery (GI) stress management intervention. Identification of variables that predict the efficacy of this intervention could assist in the on-going development of this intervention and potentially tailor the intervention to this high-risk population.

Methods: A secondary data analysis of a longitudinal repeated measure design with a sample of 36 pregnant African American recruited at 14-17 weeks gestation who received the 12 week GI intervention. Study measures collected at baseline included Perceived Stress Scale (PSS), State Anxiety Inventory (STAI), Center for Epidemiologic Studies-Depression (CES-D), Brief Fatigue Inventory (BFI) and demographic factors. Participants completed a Numeric Rating Scale of Stress (NRSS) before and after listening to the intervention and documented listening time. A mixed linear model (MLM) was used to analyze the efficacy of the GI as defined as daily post minus pre stress score as a function of total listening time, adjusting for the daily pre-listening score and the total daily listening time. Subsequent models adjusted for covariates suspected to have an impact on stress score.

Results: In the final model, age, education, gravidity, alcohol, caffeine, smoking, and PSS, STAI, BFI baselines measures were not significant predictors of GI efficacy where as listening time and baseline CES-D score were significant predictors. The more the participant listened to the intervention, the greater the change in stress scores. The higher the CES-D score, the greater change in stress scores.

Conclusion: GI appears to be an effective stress management intervention in pregnant African American women regardless of demographic and baseline PSS, STAI, and BFI scores as well as those with higher CES-D scores. Findings suggest the intervention may be beneficial to a wide range of pregnant African American women, including those at high risk for depressive symptoms. Listening time should be encouraged.
**Title:** Integrating Behavioral Health with Centralized Intake for Maternal, Infant and Early Childhood Home Visiting (MIECHV): Lessons from a multi-community system enhancement pilot

**Authors:** Sarah Kye Price, School of Social Work, VCU; Crystal Coles, School of Social Work, VCU; Patricia Kinser, School of Nursing, VCU; Nancy Jallo, School of Nursing, VCU; Susan Kornstein, Department of Psychiatry/Institute for Women's Health, VCU

**Objectives:** This study considers the initial efficacy of the BH-CI approach by examining prevalence and patterns of risk for perinatal depression, substance use, interpersonal violence and smoking in community settings which are points of first contact for home visiting enrollment (N=1,515); and exploring referral patterns for women with one or more identified areas of behavioral health risk.

**Background:** Enhancing women’s mental health during and around the time of pregnancy is a public health concern. However, statewide approaches to universal depression screening for new mothers have been criticized for identification without service engagement, particularly for low income women receiving public assistance (Kozhimannil et al, 2011). The Behavioral Health Integrated Centralized Intake project is a four-year effort to enhance behavioral health risk screening and service utilization among low-income and under-resourced communities in Virginia.

**Methods:** Initial identification utilized the Institute for Health and Recovery (IHR) Behavioral Health Risks Screening Tool which includes concurrent screening for perinatal depression, substance abuse, interpersonal violence, and smoking. This tiered community screening and engagement protocol moves from initial risk identification, to application of standardized screening instruments and finally to service engagement using SBIRT for service engagement.

**Results:** During the first full year of program implementation, 1,515 perinatal women participated in centralized intake and 1,409 engaged the behavioral health risk screening (93% participation). Of these women, 22% met risk triggers for perinatal depression; 11.6% for current alcohol or substance use, 10.2% for current or past intimate partner violence, and 18% for current tobacco use. Over 80% of risk-identified participants were successfully referred to one or more home visiting, mental health/substance abuse treatment or community service programs. Clusters of elevated risk were associated with higher rates of referral.

**Conclusion:** Behavioral health risk screening and service enhancement were able to be successfully implemented by centralized intake staff members in standard community care. Rates of risk identification at point of first contact are similar to national prevalence estimates. Embedding screening into existing community context partnering with multiple providers appears to be an effective way to immediately link women with supportive community interventions.
ID: 19

**Submitting Author:** Ritter, Amanda, PGY-4 Resident, Obstetrics & Gynecology, Medicine, amanda.haines@vcuhealth.org, 336-613-8476

**Title:** Plan B: Is it Just One Step?

**Authors:** Amanda Ritter, MD, Dept of OB/GYN, VCU Health; Christine Isaacs, MD, Dept of OB/GYN, VCU Health; Stephanie Lee, MD, Dept of OB/GYN, VCU Health; Alan Lee, MD, Dept of OB/GYN, The OSU College of Medicine

**Objectives:** To discover if there are barriers to accessing emergency contraception despite being legally available over the counter in the United States without age restriction. If barriers exist, to determine if such barriers vary based on the gender of the person making the purchasing request.

**Background:** In June 2013 Plan B One Step® became the only contraceptive method available over the counter without restrictions. Despite this change, the general public often receives incorrect information when purchasing emergency contraception. Limited data currently exists as to whether over the counter availability improves patient and pharmacy staff awareness of its universal access.

**Methods:** One hundred forty-six Richmond, VA pharmacies listed on the official Plan B One Step® website were identified and called. Ultimately, both a male and female caller reached and interviewed 90 pharmacies via phone during daytime and evening hours. A rehearsed, standardized script was used to ask eight questions regarding emergency contraception in relation to availability, age restrictions, parental consent, counseling requirements, and whether a male could purchase the product. The statistical data was then analyzed using Fisher’s exact test.

**Results:** Of the 146 pharmacies listed as Plan B One Step® suppliers, 56 pharmacies were unable to be interviewed. Pharmacy employees provided incorrect information to both men and women regarding age restrictions for purchasing Plan B One Step® 51% of the time. This misinformation was statistically similar regardless of whether the purchasing request came from a male or female caller. Of the 153 pharmacies polled by our male consumer in regards to male’s ability to purchase Plan B One Step®, only one employee reported that males were unable to do so (p=0.127). Both male and female callers were given correct information, as a whole, regarding the lack of need for parental consent and in-store counseling at the time of purchase. The majority of information from the callers’ surveys was obtained via pharmacy technicians (75.6% for females, 55.5% for males) rather than pharmacists (23% for females, 41% for males) or sales clerks (1.1% for females, 3.9% for males). Males were 20.99 times as likely (p=0.001) to have been transferred upon calling the pharmacy to another person with the request for Plan B One Step® compared to females, of whom none were transferred to obtain more accurate information.

**Conclusion:** Both male and female callers requesting Plan B One Step® emergency contraception received incorrect information in approximately 50% of phone encounters. Thus, health care providers must remain vigilant in counseling on over the counter emergency contraception options and accessibility.
**Submitting Author:** Sawyer, Ashlee, Sexting and Sexual Risk Behavior in Young Adult Women, Psychology, Humanities & Sciences College of, sawyeran@vcu.edu, 757-406-1332

**Title:** Sexting and Sexual Risk Behavior in Young Adult Women

**Authors:** Ashlee, Sawyer, Department of Psychology, Virginia Commonwealth University; Benotsch, Eric, PhD, Department of Psychologist, Virginia Commonwealth University

**Objectives:** The present study examined relationships between sexting and sexual risk among young adult women.

**Background:** Young adults account for half of the 20 million new STI diagnoses each year in the U.S., and women in this age group are at the highest risk level for unintended pregnancy. One factor associated with sexual risk in some prior research is sexting. Sexting can include a range of behaviors from sending messages with sexually suggestive language via text message to including images or videos depicting nudity or sexual acts

**Methods:** Young women (N=408) completed online questionnaires assessing demographics, impulsivity, sexting, and sexual behavior. A substantial majority of participants reported some sort of sexting behavior (81.4%; n=332).

**Results:** Two hierarchical logistic regressions were performed to determine the independent relationships between sexting and unprotected sex, as well as multiple sexual partners in the last 3 months, after controlling for demographic factors (age, race, relationship status) and impulsivity. Sexting behavior consisted of 5 categories: (1) no sexting, (2) text-only, (3) sexually suggestive, (4) nudity, and (5) sexual acts, with participants categorized based on the most explicit form of sexting they reported. Sexting behavior including nudity (OR=5.771, 95% CI=2.729-12.200, B=1.753, SE=.382, p<.001) and sexual acts (OR=9.032, 95% CI=4.144-19.683, B=2.201, SE=.397, p<.001) predicted unprotected sex after controlling for the other factors. Nudity (OR=7.222, 95% CI=2.053-25.409, B=1.977, SE=.642, p<.01) and sexual acts (OR=10.641, 95% CI=2.977-38.042, B=2.365, SE=.650, p<.001) in sexting were also associated with having multiple partners in the past 3 months after controlling for the other factors. Results suggest that more explicit forms of sexting are strongly associated with sexual risk behavior among young women.

**Conclusion:** The present study is one of the first to examine how different types of sexting behavior may relate differently to sexual risk. This study offers insight into how sexting behaviors may contribute to participation in various risk behaviors, and serves as a strong foundation from which to continue defining and distinguishing between different types of sexting behavior.
Submiting Author: Sealy-Jefferson, Shawnita, Assistant Professor, Epidemiology & Community Health, Medicine, ssealyjeffers@vcu.edu, 804-628-4058

Title: An evaluation of the post-stroke cancer risk among post-menopausal women: The Women’s Health Initiative

Authors: Michele L. Cote, Karmanos Cancer Institute, Wayne State University; Jennifer Beebe-Dimmer, Karmanos Cancer Institute, Wayne State University; Rowan Chlebowski, David Geffen School of Medicine, University of California, Los Angeles; Kathryn Rexrode, Brigham

Objectives: To address this, we used data from the observational and clinical trial of the Women’s Health Initiative (n=145,075), to test whether stroke history was associated with cancer risk and tumor type, and whether variation in cancer risk and tumor type exist by race/ethnicity.

Background: Links between cancer history and incident stroke have been established, such that 15% of cancer patients experience a stroke at some point during their clinical course. However, we do not know whether stroke history is associated with cancer risk, especially for those cancers with overlapping risk factors with stroke.

Methods: Time to incident cancer (in months) was estimated with bivariate and multivariate adjusted cox proportional hazards models, accounting for competing risks, comparing women with incident or prevalent stroke to women without stroke at baseline or at any point during follow-up, and models were stratified by race/ethnicity.

Results: Women with stroke history, compared to those without, had significant differences in the following baseline characteristics: age, body mass index, smoking status, hormone replacement therapy usage, hypertension, hypercholesterolemia and diabetes, and differences were consistent among race/ethnic groups. In unadjusted and adjusted competing risk models of the overall sample, lower cancer risk was observed for women with prior stroke compared to those without stroke history (adjusted HR: 0.81; 95% CI: 0.75, 0.88). In race-stratified models, Non-Hispanic White (NHW) women experienced significantly lower risk of cancer following stroke, compared to those with no stroke history (adjusted HR: 0.81; 95% Confidence Interval: 0.74-0.89), and the magnitude of the association was similar, although not significant, for African American (AA) and Other racial/ethnic groups. The associations with stroke were stronger for African American women with invasive breast (p=0.02), lung (p=0.04), and Other racial/ethnic (p=0.001) cancers, compared to NHW women.

Conclusion: The results of the current study suggest that overall, women have lower cancer risk post-stroke, but that AA women, compared to their NHW counterparts, have higher risk of certain types of cancers after stroke. Future studies should investigate the mechanisms underlying the lower cancer risk among all stroke survivors, as well as examine why AA women develop certain tumors more often than NHW women.
ID: 22

Submitting Author: Smith, Erin, Ms., Psychology, Humanities & Sciences College of, smither6@vcu.edu, 906-458-3746

Title: An Unfortunate Omission in Health Research: Risky Sexual Behavior in Sexual Minority Women and Connections with Discrimination

Authors: Erin Smith, Department of Psychology, Virginia Commonwealth University; Paul Perrin, Department of Psychology, Virginia Commonwealth University, Annie Rabinovitch, Department of Psychology, Virginia Commonwealth University

Objectives: The present study describes the prevalence and forms of risky sexual behavior and examines associations between discrimination and these behaviors in ethnically diverse SMW.

Background: In contrast to perceptions that sexual minority women (SMW) are at minimal or low risk of contracting sexually transmitted infections (STIs), research has provided prevalence rates for numerous STIs affecting SMW, and has identified factors placing SMW at increased risk for STIs compared to heterosexual women. Associations between sexual minority-based stressors and risky sexual behaviors in sexual minority men have been established, but there has literally been no parallel research focusing on SMW, despite prior findings indicating SMW experience heterosexism. Further, few studies have sought to quantify risky sexual behavior in SMW despite high rates of STIs.

Methods: 150 ethnically diverse SMW participated in an online national survey assessing experiences with heterosexism and risky sexual behaviors.

Results: A canonical correlation found that heterosexism and risky sexual behaviors have 20.7% overlapping variance, a medium effect size. Specifically, SMW who experience heterosexism from service employees, strangers, and health care professionals engage in more impulsive sexual behaviors. Multiple regressions demonstrated that heterosexism was a unique predictor of impulsive sexual behaviors, sex with uncommitted partners, and the intent to engage in sex, explaining 19.3%, 8.6%, and 8.8% of the variance, respectively. Unprotected oral and vaginal sex, sex under the influence of substances, and partners with many past partners were frequently reported in the sample.

Conclusion: High rates of risky sexual behaviors were found, as well as an association between heterosexism and impulsive sexual behaviors in. Educating health care providers on sexual risk factors for SMW as well as creating accessible safer sex information for SMW as well as creating accessible safer sex information for SMW is an important future direction for research.
ID: 24

**Submitting Author:** Boutte, Rachel, An Examination of the Technical and Relational Hypotheses of Motivational Interv, Psychology, Humanities & Sciences College of, boutterl@vcu.edu, 901-270-5459

**Title:** An Examination of the Technical and Relational Hypotheses of Motivational Interviewing

**Authors:** Rachel L. Boutte, Psychology, Virginia Commonwealth University; Nadia Y. Islam, Psychology, Virginia Commonwealth University; Melanie K Bean, Pediatrics, Virginia Commonwealth University; Suzanne E. Mazzeo, Psychology, Virginia Commonwealth University

**Objectives:** The purpose of the current study was to analyze motivational interviews as a basis for exploring the technical and relational hypotheses of MI. The technical hypothesis of MI asserts that it is adherence to specific clinician skills, such as asking open questions, and affirming the client that make MI effective. The relational hypothesis asserts that it is the person centered, collaborative relationship that facilitates client exploration.

**Background:** Rates of adolescent and adult obesity have reached epidemic proportions in recent years, and African American women have been disproportionately affected by obesity and its comorbidities. Obesity in adolescents is particularly problematic, as it is a strong predictor of obesity in adults. Research suggests that adherence in obesity interventions can be improved by the use of additional behavioral interventions, such as Motivational Interviewing (MI). Especially for minority groups, treatment adherence is a major barrier to improved treatment outcomes. Although this approach has been successful, the mechanisms of MI are not well understood, especially in adolescent populations.

**Methods:** The current study analyzed 30 motivational interviews conducted with African American adolescent girls enrolled in a multidisciplinary obesity intervention. The Motivational Interviewing Skills Code 2.5 was used to code the interviews for clinician and client language.

**Results:** Results supported evidence for both the technical and relational hypotheses of MI. Within the technical skills of MI certain types of therapist language were predictive of client change talk (CT). Specifically, clinician language that accurately reflected clients’ thoughts and feelings and language that emphasized client autonomy were most predictive of CT. Furthermore, certain categories of CT emerged as more common than other categories. Language that focused on reasons for change and ability to change occurred more frequently than language about desire to change or taking steps in the direction of change.

**Conclusion:** This study provides insight into the aspects of MI that are most important in interventions with adolescents, and how they conceptualize their self-efficacy to make behavioral changes related to weight loss. Future MI interventions with adolescent populations in this context should emphasize client autonomy through the use of accurate reflection and open questions.
ID: 25

Submitting Author: Brechbiel, Julia, Doctoral Student, Psychology, Humanities & Sciences College of, brechbieljk2@vcu.edu, 703-975-3267

Title: Gender Differences Among Inmates Participating in a Prison Animal Program (PAP)

Authors: Julia Brechbiel, BS; Jesse Wingate, MEd; Victoria Shivy, PhD, Department of Psychology at VCU.

Objectives: We evaluated the overall efficacy of the Pen Pals Program and explored whether male or female inmates benefited differently in their self-reported levels of anxiety, loneliness, quality of sleep, attitude towards pets and general health symptoms.

Background: Male and female inmates differ significantly in their patterns of offending and crimes committed. Due to the high prevalence of childhood abuse and victimization among women, especially those incarcerated, female inmates may have greater physical and mental health needs than male inmates. In response, prison-based practitioners and administrators have, for the past two decades, tried to tailor prison programming to better meet the needs of female offenders. We examined gender-related differences in outcomes for the Fetch-a-Cure’s Pen Pals program, a prison-based animal training program (PAP) that provides career and life skills training to select inmates in the Virginia Department of Corrections that has an overall goal to increase the likelihood of inmates’ successful community reentry. It is thought that this prison animal program also could address some of the the specific needs of female inmates, including those associated with a history of abuse, lack of job skills, and the pain associated with being a mother in prison.

Methods: Inmates at correctional facilities with the Pen Pals program participated in the study by completing a questionnaire composed of the Trait Anxiety Subscale of the State-Trait Anxiety Inventory, the UCLA Loneliness Scale, the Pittsburgh Sleep Quality Index, the Attitudes Toward Pets scale, and the General Health Questionnaire-12.

Results: Participation in the Pen Pals program is defined by dog handler status, wherein those involved in the program are considered handlers. Outcome analyses suggest that male and female dog handlers did not differ across major variables. In contrast, male and female non-handlers did differ in their mean scores for self-reported loneliness and quality of sleep. In particular, female non-handlers scored higher in loneliness and reported worse sleep habits than male non-handlers.

Conclusion: The appearance of gender differences only among non-handlers suggest that participation in the Pen Pals program reduces gender differences in the prison population by lowering levels of loneliness and promotes better sleep hygiene among female inmates.
Title: Campus Climate Survey on Sexual Violence and Bystander Behavior: A Campus Alliance to End Violence (CAEV) Initiative

Authors: Katherine Vatalaro Hill, Division of Student Affairs, VCU; Jihad Aziz, Division of Student Affairs, VCU; Sarah Jane Brubaker, Wilder School of Government and Public Affairs, VCU; Kevin Harris, Health Sciences, VCU; Melodie Fearnnow-Kenney, Global Education

Objectives: The purpose of this study was to assess the campus climate related to sexual violence and bystander behavior to inform the development of formal training, policy and protocols. The survey collected information on student demographics, bystander intervention behavior and beliefs, sexual assault prevalence, and utilization of resources.

Background: VCU collaborated with the University of Richmond and local Richmond partners to create a coordinated community approach to enhance survivor safety and perpetrator accountability: the Campus Alliance to End Violence (CAEV). The Campus Climate Survey on Sexual Violence and Bystander Behavior is one part of this unique initiative.

Methods: The VCU survey was open for three weeks in February, 2015. All undergraduate and graduate students over the age of 18 were eligible to participate in the study. A random sample of 5000 students were selected and invited to participate. A total of 685 students responded, yielding a 14% response rate.

Results: This study demonstrated gender differences in interpersonal violence prevalence with 18% of female identified participants and 5% of male identified participants reporting experiencing a rape in their lifetime. Preliminary results indicate that by and large participates were likely to intervene when someone they know is involved. When a stranger is involved, more participants indicated they were unsure of a course of action or less likely to intervene. In terms of prevalence, participants indicated slightly lower rates of interpersonal violence than national estimates. However, a discrepancy was found between students who indicated they had been sexually assaulted versus students who indicated they had experienced acts that meet the legal definition of sexual assault. Finally, participants who had experienced interpersonal violence indicated an under-utilization of resources on campus and in the community.

Conclusion: The results highlight a need for prevention programming to reinforce current bystander behaviors utilized by students with friends and teach bystander skills related to intervening with strangers. More research is needed to further explore how best to communicate resources to students, as well as what specific resources are most needed by survivors.
**Title:** Sex Differences in Initial Experiences with Tobacco and Its Association with Recent Use of Tobacco and Nicotine Dependence

**Authors:** Do, Elizabeth, Virginia Institute for Psychiatric and Behavioral Genetics, Virginia Commonwealth University; Maes, Hermine, Departments of Psychiatry, Human and Molecular Genetics and Massey Cancer Center, Virginia Institute of Psychiatric and Behavioral

**Objectives:** The present study seeks to contribute to the literature by determining whether there is an association between initial experiences with tobacco and recent use of cigarettes, cigars, smokeless tobacco, hookah, e-cigarettes, and nicotine dependence; and, whether these associations differ by sex.

**Background:** Previous studies suggest that initial experiences with tobacco influence future tobacco use. However, these studies have primarily focused on initial experiences with cigarette use.

**Methods:** To investigate sex differences in retrospectively-reported initial experiences with tobacco and its association with recent use of tobacco and nicotine dependence, we utilized data from the Spit for Science: The VCU Student survey. The analytic sample was limited to those who had information on initial experiences with tobacco use (1,449 individuals of the full sample of 9,892 individuals). Polychoric correlations were computed to examine the relationship between initial experiences with tobacco and recent tobacco use and nicotine dependence. Multivariate analyses were conducted via multiple regressions, to determine whether sex was an important contributor to the association between initial experiences with tobacco use and nicotine dependence, taking the covariates such as age of onset, sex, race/ethnicity, and first tobacco product used and significant interaction effects into account.

**Results:** More males endorsed recently using cigarettes, smokeless tobacco, cigars, hookah, and e-cigarettes, relative to females. Males were also more likely to meet criteria for nicotine dependence. Sex differences were found across positive symptoms (e.g. pleasant sensations, relaxation, and pleasurable rush or buzz) and negative symptoms of initial experiences (e.g. dizziness and unpleasant sensations). No significant sex differences were found across difficulty breathing symptoms of initial smoking experiences. Significant correlations were found between initial experiences with tobacco and recent tobacco use, which differed slightly across males and females. Sex is an important contributor to the association between initial experiences with tobacco use and nicotine dependence.

**Conclusion:** Initial experiences with tobacco and its association with recent and nicotine dependence differs by sex. Further research is needed to determine the relative contributions of genetic and environmental factors to these findings.
Submitting Author: Glascock, Abigail, Microbiology & Immunology, Life Sciences, alglascock@vcu.edu, 804-814-5731

Title: Clinical and Genomic Characterization of Two Vaginal Megasphaera Species

Authors: Abigail Glascock, Center for the Study of Biological Complexity, Virginia Commonwealth University; Vaginal Microbiome Consortium, Virginia Commonwealth University; Jennifer Fettweis, Center for the Study of Biological Complexity & Department of Obstetrics

Objectives: The aims of this research were to perform clinical and genomic characterization and comparison of the two vaginal biotypes of Megasphaera and to utilize the data to gain insight into the mechanisms behind the unique clinical associations and potential niche specialization of the two biotypes.

Background: Megasphaera, a genus of gram negative bacteria, has been shown to be part of the vaginal microflora and associated with vaginal dysbiosis. Two vaginally relevant Megasphaera biotypes, Type 1 and Type 2, exhibit differential association with clinical diagnosis of bacterial vaginosis and trichomoniasis respectively. Type 1 has also been associated with spontaneous preterm delivery, increased number of lifetime sexual partners and male urethritis.

Methods: As a part of the Vaginal Human Microbiome Project at VCU, vaginal profiles of more than 4,000 women were generated through next-generation sequencing of the 16S rRNA gene V1-V3 region. Genomic characterization was achieved through targeted cultivation and whole genome sequencing of bacterial clones followed by annotation and comparative analyses. We analyzed self- and physician-reported health data in combination with the microbiome profiles to identify clinically relevant associations.

Results: Genomic analysis revealed massive genome rearrangement between the two biotypes, distinct GC composition between biotypes and differences in nucleotide, protein and carbohydrate metabolism. Both biotypes were found to be strongly associated with African American race, increased number of sexual partners, and lower socioeconomic status. Type 2 was strongly associated with trichomoniasis, while Type 1 was strongly associated with bacterial vaginosis. Type 1 was not excluded in pregnancy and was less prevalent in a post-menopausal cohort, in stark contrast to trends associated with other bacterial vaginosis associated organisms.

Conclusion: Biotype-level differences in clinical presentation and genomic characteristics suggest a differential role of Megasphaera biotypes in the vaginal environment.
Submitting Author: Guidry, Jeanine, MS, Social & Behavioral Health, Medicine, guidryjd@vcu.edu, 804-683-4512

Title: Tweeting #WhyIleft and #WhyIstayed: Analyzing the conversation around intimate partner violence on Twitter

Authors: Jeanine Guidry, Department of Health Behavior and Policy, Virginia Commonwealth University; Kellie Carlyle, Department of Health Behavior and Policy, Virginia Commonwealth University; Ariella Tabaac, Department of Psychology, Virginia Commonwealth University

Objectives: This study examines public engagement on Twitter in the ongoing #WhyIStayed/#WhyIleft conversation, which emerged in the aftermath of a widely-circulated video showing NFL player Ray Rice violently attacking his then-fiancée. The study research questions are as follows:

RQ1: What are the differences in basic Twitter content between #WhyIstayed and #WhyIleft tweets?

RQ2: What are the differences in engagement between #WhyIstayed and #WhyIleft tweets?

RQ3: Is there a difference in the types of reasons (affective, perception of others, safety, and logistics) listed in the tweets for IPV victims staying with their abuser?

Background: Intimate Partner Violence (IPV) is a pressing public health problem with significant consequences for individuals and society. As such, understanding the dynamics of abusive relationships, including why women remain in relationships with abusive partners, is of great interest to researchers and advocates alike. While IPV was traditionally perceived as an individual/family issue, it has been increasingly been understood as a social problem. Social media provides a unique opportunity to examine this phenomenon and the social context in which it occurs.

Methods: A random sample of 1,000 tweets including the hashtags #WhyIleft and #WhyIstayed was extracted during a 3-month period from October through December 2014. In a quantitative content analysis, three independent investigators coded for variables including the tweet content and the frequency of Twitter engagement. Further analyses were interpreted through the lens of the Theory of Planned Behavior (TPB) as well as Framing Theory.

Results: The results show that reasons for staying were significantly more likely to be retweeted than reason for leaving, and thematic tweets were significantly more likely to be retweeted than episodic tweets. Of the entire sample, 153 tweets mentioned specific reasons for staying: 13.1% listed perceptions of others, 17.6% listed safety issues, 60.1% listed affective issues, and 7.2% listed logistical issues.

Conclusion: The findings provide some evidence that Twitter can be an effective medium for engaging the public on this issue as well as a mechanism for increasing social support for victims. Expressed reasons for staying were consistent with a social ecological understanding of IPV. Finally, there is a need for interventions that increase behavioral capabilities, support networks, and access to resources; and decrease stigma and risks associated with leaving abusive situations.
ID: 30

Submitting Author: Jimenez, Nicole, Post-Baccalaureate, Microbiology & Immunology, Medicine, jimeneznr@vcu.edu, 480-703-6749

Title: Characterization of Bifidobacterium breve Strains in the Vaginal Microbiome

Authors: Jennifer M. Fettweis, Ph.D., Department of Obstetrics and Gynecology, Center for the Study of Biological Complexity, Virginia Commonwealth University, Richmond, VA

Objectives: We hypothesize that this species may also provide benefit to the host in the vaginal microbiome. Characterization of vaginal isolates of this bacterial species may lead to improvements in diagnosis and treatment of disorders that affect the female reproductive tract. This line of work may ultimately help to elucidate the role of B. breve in transmission of the microbiome from mother to child at birth.

Background: The vaginal microbiome is a frontier of the Human Microbiome Project, and there is still much to be discovered about the role microorganisms play in this dynamic environment. One of the species identified in the vaginal microbiome that has an unknown role in women’s health is Bifidobacterium breve. In the gut microbiome, B. breve is a beneficial commensal that is commonly used in probiotic formulations and has therapeutic potential for the treatment of gastrointestinal disorders such as Crohn’s disease.

Methods: Herein, we targeted and compared 11 B. breve genomes of vaginal isolates including 2 vaginal genomes from the NCBI database and 9 strains obtained from different women who exhibited a high bacterial proportion >35%. Additionally, B. breve isolate from three of the individuals who exhibited a bacterial proportion of >35% of B. breve in the vaginal microbiome at two annual exam visits approximately a year apart were isolated as well. Using NCBI database genomes vaginal B. breve genomes were compared to 25 other B. breve genomes which included various microbiomes: human milk, gut microbiome, and oral. The comparisons were completed using RAST genome annotation pipeline to create metabolic reconstruction. Also a phylogenetic tree was constructed using 11 single copy orthologue sequences.

Results: Our 9 samples 16s rRNA profiles showed an association with other Bifidobacterium species as well as some Lactobacilli species such as L. crispatus and L. gasseri. Further analysis will be done to see if this trend upholds with the ~6,000 women who participated in the Vaginal Human Microbiome Project (VaHMP) at VCU. Our RAST analysis of the 2 publicly available vaginal genomes indicated that most genes were conserved between strains. However, minor changes were observed and this may be due to niche association. The phylogenetic tree also proved that at the protein level you could not cluster strains between niches due to the high similarity. Our next step is to analyze the sequence at the nucleotide level to observe for SNPs, inversions, and deletions. Other ongoing analyses will identify associations of the presence of B. breve in the vaginal microbiome with clinical diagnoses and other clinical data from the ~6,000 cohort.

Conclusion: In conclusion, B. breve strains seem to be highly similar and this species role in the vaginal microbiome still needs to undergo further analysis will need to be done to prove our hypothesis.
**ID**: 31

**Submitting Author**: Lapato, Dana, Human & Molecular Genetics, Medicine, lapatodm@vcu.edu, 804-721-1613

**Title**: DNA Methylation Differences in a Racially Diverse Pregnant Population

**Authors**: Lapato, Dana, Human and Molecular Genetics, VCU; Langi, Gladys, Human and Molecular Genetics, VCU; Strauss III, Jerome, Human and Molecular Genetics and Obstetrics and Gynecology, VCU/MCV; Amstadter, Ananda, Psychiatry and Human and Molecular Genetics,

**Objectives**: To quantify the degree of difference in DNAm profiles between AA and EA mothers measured early in pregnancy and whether these differentially methylated regions contribute to the timing of birth.

**Background**: Preterm birth (PTB) is a leading cause of infant mortality and childhood morbidity, and 10% of babies are born preterm each year worldwide. PTB represents a staggering health disparity, not only among countries but also among racial groups. PTB is significantly more prevalent in African-American (AA) than European American (EA) mothers, 16.3% and 10.1% respectively. Socio-economic models have failed to explain the substantial difference in PTB rates and little is known about biological mechanisms that affect the timing of birth. Recent research has revealed that the total variance for AA pregnancies is almost twice that observed for EA and that the pregnancy-specific environment contributed to the majority of this difference. These results prompted an epidemiological investigation into the environmental exposures linked to changes in the gestational age at birth (GA). Changes in DNA methylation (DNAm) have been shown to predict disease in humans and have been tied to environmental exposures such as trauma and stress.

**Methods**: Two hundred mother-child dyads (100 AA, 100 EA) were recruited before 16 weeks gestational age and peripheral blood and questionnaire/medical records data were obtained at an additional 3 follow-up visits. Questionnaires focused on measuring the environmental concomitants that may correspond to the increased environmental heterogeneity observed in AA mothers (e.g., stress, coping strategies, pregnancy-related distress and anxiety, life events, neighborhood typology). Genome-wide DNAm was measured from bisulfite converted DNA from blood samples using the Illumina Infinium HumanMethylation450 BeadChip.

**Results**: A total of 1,688 (1% FDR) individual CpG sites measured at baseline differed between self-reported racial groups and differences persisted after controlling for allelic variation that could contribute to mean differences in DNA methylation levels.

**Conclusion**: Differences in DNAm profiles between AA and EA mothers were observed and further studies will test whether these differences mediate the influence of environmental risk on gestational age at birth.
Title: Role of ERα36 in Sphingosine-1-Phosphate/Sphingosine Kinase 1 Axis in Breast Cancer

Authors: Melissa Maczis, Department of Biochemistry and Molecular Biology, Virginia Commonwealth University School of Medicine; Nitai Hait, Department of Biochemistry and Molecular Biology, Virginia Commonwealth University School of Medicine; Sheldon Milstien, Department of Biochemistry and Molecular Biology

Objectives: To determine the role of the SphK1/S1P axis in breast cancer cells that only expression the E2 receptor, ERα36.

Background: Breast cancer is the most commonly diagnosed cancer in women, and more than 40,000 women in the US die each year of metastatic breast cancer. The estrogen receptor-α (ERα) and its ligand 17β-estradiol (E2) play critical roles in breast cancer. E2 elicits genomic effects in ERα-positive breast cancers that are important for tumor growth by binding to cytosolic ERα66 and ERα46, which homo- or hetero-dimerize and translocate to the nucleus where they bind to DNA and regulate transcription (1). However, triple negative breast cancers (TNBC), which lack the progesterone receptor and Her2/Neu as well as ERα66, do not respond to hormonal therapy with tamoxifen (1,2). The novel splice variant, ERα36, is expressed on the plasma membranes of TNBC cells eliciting rapid, non-genomic responses to E2 and has been implicated in tamoxifen resistance. Previous studies have shown E2 activates sphingosine kinase 1 (SphK1), which produces the bioactive sphingolipid metabolite sphingosine-1-phosphate (S1P). Formation and secretion of S1P stimulates S1P receptors, which then transactivates epidermal growth factor receptor (EGFR) in ERα-positive breast cancer cells (3,4). However, the E2 receptor involved in SphK1 activation and formation of S1P is unknown.

Methods: Cell culture, BCA Macro Protein Assay, Immunoblotting, LC-ESI-MS/MS, Confocal Microscopy.

Results: We utilized TNBC cells that only express ERα36 to examine the role of this receptor in SphK1/S1P signaling in breast cancer. TNBC cells treated with E2 increased intracellular and secreted S1P measured by LC-ESI-MS/MS in a time dependent manner. Moreover, membrane-impermeable E2-BSA also increased secreted S1P measured by LC-ESI-MS/MS. Immunoblotting with a phosphospecific antibody revealed that E2 as well as membrane-impermeable E2-BSA activated SphK1, and induced its translocation to the plasma membrane. Furthermore, treatment of TNBC cells with neutralizing ERα36 antibody suppressed E2-induced SphK1 activation and S1P production and secretion.

Conclusion: ERα36 is the E2 membrane receptor required for E2-mediated SphK1 activation and increased secretion of S1P, which is involved in the non-genomic effects of E2. Our data also suggests that targeting the SphK1/S1P axis might be a new therapeutic option for treatment of patients with TNBC.

Eligible for an award: yes

Presented Previously: no
**ID:** 33

**Submitting Author:** Masiano, Steven, Mr., Healthcare Policy & Research, Medicine, masianosp@vcu.edu, 804-502-2095

**Title:** Cost-utility analysis of outreach antenatal care clinics in Malawi’s Ntcheu district

**Authors:**

**Objectives:** To conduct a cost-utility analysis of outreach ANC clinics in Ntcheu district from the year 2000 through 2012.

**Background:** In an effort to reduce maternal mortality in Malawi and accelerate the country’s progress towards achieving the Millennium Development Goal (MDG) on maternal health, district health offices in the country introduced outreach antenatal care (ANC) clinics to improve access to care for pregnant mothers. Eventually, however, the country fell short of meeting its MDG target, in 2015.

**Methods:** We used data from Ntcheu district health office (DHO) and reviewed both published and unpublished literature to derive estimates of costs, effects and cost-effectiveness of the outreach ANC clinics. The study adopted a modified society perspective and compared the intervention to a situation of no intervention. Sensitivity analysis to test the robustness of the estimates was conducted using both deterministic and probabilistic methods in Microsoft Excel and STATA 12.1.

**Results:** The total cost of the program was about $1,340,000, over the 13-year period of which 54% was borne by Ntcheu DHO, 26% by women attending the clinics and 20% by donors. The number of ANC visits increased from 16,270 in 2000 to 20,574 in 2012. During the same period, the number of deliveries conducted in health facilities increased from 11,680 to 14,752. The study found that the outreach ANC clinics were highly cost-effective as a total of 31,289 DALYs were averted, representing a cost-effectiveness ratio (CER) of about $43 per DALY averted. In the face of uncertainties, this estimate was found to still be cost-effective and therefore robust with a 95% confidence interval of the CER from $22 to $101.

**Conclusion:** Outreach ANC clinics in Ntcheu district were found to be a highly cost-effective community intervention and potentially affordable in light of subventions received by the DHO from the central government. The program is a worthwhile effort that should be continued and expanded to reach populations still being underserved.
Title: Analysis of the growth rate of Lactobacillus crispatus and Gardnerella vaginalis in vaginal epithelial cell co-culture system

Authors: Abdallah Amr Abdelmaksoud, Microbiology and Immunology, Virginia Commonwealth University; Kimberly K. Jefferson, Microbiology and Immunology, Virginia Commonwealth University.

Objectives: We hypothesized that conditions in the vagina during menses favor the growth of BV-associated bacteria and that this growth advantage is what initiates BV. We also hypothesize that certain strains of Lactobacillus crispatus are more capable of coping with changing vaginal conditions (are more "fit") and thus suppress the growth of BV-associated species, even during menses, whereas other strains of L. crispatus are less capable of coping with these changes, leading to the development of BV.

Background: Bacterial vaginosis, (BV) is a dysbiosis, or a disturbance in the vaginal ecosystem characterized by a decrease in lactobacilli and an increase in anaerobic bacteria such as Gardnerella vaginalis. BV is the most common vaginal disorder in women from age 20 to 50. Healthy vaginal lactobacilli, such as Lactobacillus crispatus can inhibit the growth of harmful bacteria through the production of lactic acid and bacteriocins. However, even women who are colonized by healthy lactobacilli, can sometimes develop BV, and some women experience recurrent BV every month concurrent with the initiation of menses (23).

Methods: To investigate our hypothesis, we created two different media that simulate the vaginal environment during the follicular phase (mid-cycle) and during menstruation and two co-culture systems that utilize vaginal epithelial cells to more closely replicate the vaginal environment. We utilize 8 strains of L. crispatus to determine strain variation in fitness, 4 of which are from women with no reported history of BV and 4 are from women with recurrent BV. We use a strain of G. vaginalis isolated from a confirmed case of BV to determine the relative fitness of BV-associated bacteria in the 2 types of media.

Results: The experiment results indicated that L. crispatus grew more rapidly in the follicular phase media than G. vaginalis. Somewhat surprisingly, both species were killed by peripheral human blood but a healthy strain of L. crispatus was more resistant to killing by blood

Conclusion: Whole peripheral blood kills vaginal bacteria. Therefore, either BV develops after menstruation has ceased or endometrial blood does not kill vaginal bacteria as efficiently as peripheral blood.
Examining Depression and Stress as Mental Health Predictors of Dual Contraceptive Method Use in College Women

Melanie Moore, Psychology, Virginia Commonwealth University; Brandi Galloway, Health Behavior and Policy, Virginia Commonwealth University; Sarah Javier, Psychology, Virginia Commonwealth University; Chiamaka Anyalewchi, Psychology, Virginia Commonwealth University

Objectives: To examine mental health predictors (history of depression diagnosis and stress) on dual contraceptive method use among sexually active college women aged 18-25, who are at risk for STIs and unintended pregnancy.

Background: High rates of sexually transmitted infections (STIs) and unintended pregnancies—pregnancies defined as being unwanted or mistimed—remain a significant public health concern among young women in the United States. Dual contraceptive method, which involves the concurrent use of both a hormonal contraceptive and a condom barrier during vaginal sex, is the most effective method in preventing both STI transmission and unintended pregnancy. Despite its effectiveness, dual contraceptive method use is low among women and little is known about factors that influence dual method use.

Methods: Data from 307 unmarried women who completed the National College Health Assessment at Virginia Commonwealth University were analyzed. Multivariate logistic regressions were utilized to examine history of depression diagnosis and stress as predictors of dual contraceptive method use during last vaginal sex when compared to other methods. Age, relationship status, race/ethnicity, number of sexual partners, recent gynecological exam, and being diagnosed/treated for recent an STI in the past 12 months were entered as control variables.

Results: Approximately 30% utilized a dual contraceptive method during last vaginal intercourse. Approximately 43% used hormonal contraceptives in absence of a condom barrier and 18.8% used condoms in absence of hormonal contraceptives. No method was used among 9.4% of the sample. Primary analyses revealed that history of being diagnosed with depression predicted lower odds of dual method use when compared to dual method non-use (aOR = .38). Depression also predictor lower odds of dual method use compared to use of hormonal contraceptives (aOR = .39) and use of no method (aOR = .12).

Conclusion: Dual contraceptive method use is low among women. Our findings point to the importance of depression and stress in dual method use. These findings also support previous literature highlighting the relationship between mental health and preventative health behaviors. Health care providers should consider the possibility of conducting brief mental health screenings during annual gynecological visits.
**Title:** The Red Flag Campaign: Using the Theory of Planned Behavior in Bystander Intervention Design and Evaluation

**Authors** Caroline A. Orr, M.A., M.S., Kellie Carlyle, Ph.D., Jeanine Guidry, M.A., Abigail Conley, Ph.D., & Daniel Snipes, Ph.D.

**Objectives:** To describe the development and psychometric validation of an 8-item, theory-based bystander evaluation instrument designed to measure key bystander outcomes including attitudes, norms, efficacy, intentions, and behavior.

**Background:** The Red Flag Campaign (RFC), Virginia’s first statewide dating violence prevention program on college campuses, has now expanded to more than 400 campuses nationwide. However, the program has not been systematically evaluated. The purpose of this study was to determine whether the Theory of Planned Behavior, the theoretical framework that guided the development of the RFC, could strengthen its program evaluation through the development of an evidence-based, theoretically grounded evaluation tool.

**Methods:** The instrument, which was dually informed by Latane and Darley’s model of bystander behavior as well as the Theory of Planned Behavior, was administered to a random sample of college students (N = 1,554) before and after exposure to the RFC. The bystander constructs measured by the new instrument (attitudes, norms, perceived control, and intentions) were also assessed using the most common bystander evaluation instruments in the literature. Exploratory factor analyses (EFA) were performed to examine the underlying structure of the constructed items, and Regression analysis was used to compare the utility of our scale compared to existing scales.

**Results:** A measure consisting of attitudes, norms, and perceived behavioral control was found to be internally reliable and unidimensional, showing promise in its utility for program evaluation.

**Conclusion:** The results also demonstrate the value in framing an education program like RFC through a theoretical lens in order to provide rich insight toward more effectively testing materials, interventions, and future messaging. Not only did the proposed evaluation tool measure key constructs in a more parsimonious and realistically feasible way, it also provided additional predictive power of behavioral intentions over and above previously established measures.
Submiting Author: Parrish, Candace, Doctoral Student, Other, Humanities & Sciences College of, Parrishcp2@vcu.edu, 571-432-6261

Title: How Academia Can Create Social Change Toward Ending Sexual and Relationship Violence on College Campuses: Updates from a Needed Conversation

Authors: Rowena Briones, School of Media & Culture, VCU; Tremayne Robertson, The Wellness Center, VCU; Alyssa Glace, Psychology, VCU; Katharine Pyle, School of Media & Culture, VCU; Candace Parrish, Media, Art & Text, VCU; Leah Gregory, Social & Behavioral Health,

Objectives: How university-affiliated personnel can share information to community members and units outside of communication, by having universities ideally operate on a community-based model to prevent sexual and relationship violence on their respective campuses.

Background: According to the Department of Justice, 20-25% of women and 4-6% of men are victims of rape while in college (Fisher, Cullen, & Turner, 2000). The Office for Civil Rights of the Department of Education have recently responded to these incidences by calling for schools to take immediate and effective steps to prevent sexual violence, as required by Title IX mandates. With this said, a short course presentation slated for late March plans to focus on how different campus

Methods: A short course presentation is slated to take place in late March. Teaching methods will include: (1) Lecture with Q&A throughout; (2) Small group discussion; (3) Breakout sessions; and (4) Hands-on activities. The intended audience for this short course is administrators, faculty, staff, and students (both at the graduate and undergraduate level).

Results: Still to be determined, but our hope this that at the completion of our short course, participants will learn: (1) How to make the case for the importance of communication in this work; (2) How to mobilize an interdisciplinary team on their campuses to educate the surrounding community about sexual and relationship violence; (3) How to integrate teaching, research, and practice into their prevention efforts; (4) How to establish and maintain community partnerships to help with the cause; and (5) How to enhance messaging of the trends, policies, and guidelines in layperson terms to the campus community and beyond that is trauma-informed and sensitive to survivors.

Conclusion: The short course continues to positively impact the reputation of VCU as an institution that is proactive in meeting a range of Title IX requirements and Federal Campus SaVES Act mandates for SA/IPV and stalking. This short course presentation additionally works to raise the profile of sexual and domestic violence research at VCU’s specific goal of the Institute for Women’s Health and, more importantly, to help the IWH/VCU achieve their goals of raising awareness
Sex-Related Differences in Autonomic Modulation of Heart Rate Variability in a General Population Sample

Authors: Lance, Rappaport, Department of Psychiatry, Virginia Institute for Psychiatric And Behavioral Genetics, VCU; Julia Vileisis, VCU; Laura Hazlitt, Department of Psychiatry, Virginia Institute for Psychiatric And Behavioral Genetics, VCU; Audrey Anderson

Objectives: Lower HRV, specifically those measures indicating parasympathetic activation, has been implicated as a correlate of anxiety and mood disorders, which have a higher prevalence among females particularly during adolescence/young adulthood. This study invest

Background: Heart rate variability (HRV) has been employed to evaluate the influence of the sympathetic and parasympathetic branches of the autonomic nervous system on heart rate (HR). Parasympathetic nerves slow HR through the release of acetylcholine while sympathetic nerves accelerate HR and contraction strength through the release of epinephrine and norepinephrine.

Methods: HR variation during normal breathing for a period of 10 minutes was recorded using an ECG amplifier, with subject supine, awake, and resting. Frequency domain analysis was performed using nonparametric method of Fast Fourier Transformation. Cardiac data was collected from 406 young people (M age=17.11, 56% female).

Results: Compared to males, females exhibited a greater low frequency (LF) to high frequency (HF) ratio, suggesting that their sympathovagal balance tilted more towards parasympathetic than sympathetic activity (t (365) = 4.52, p = 8.28x10^-6). There was no evidence of a sex difference in the high frequency band (t (360) = .08, p = .93). Females also exhibited lower inter-beat intervals (t (353) = 2.02, p = .04), indicating a faster HR. Results were robust to age adjustment. The association between HRV and current measures of negative affect also will be examined.

Conclusion: Our results indicate that females demonstrate greater LF/HF ratio and faster HR compared with males during rest. Implications of findings and the association between HRV metrics and NA measures will be examined to determine whether NA states are differentially associated with reduced HRV in females compared to males.
ID: 39

Submitting Author: Robins, Jo, Associate Professor, Other, Nursing, jwrobins@vcu.edu, 804-828-776

Title: Allostatic Load, Cardiometabolic Risk and Psychosocial Risk and Protective Factors in Underserved African American Mothers

Authors: Jo Robins, PhD, RN; Wendy Kliewer, PhD; Alicia Borre Montealegre, MS

Objectives: To quantify allostatic load (AL) in underserved African American/Black mothers and ultimately quantify associations between maternal and adolescent AL and risk/protective factors within families.

Background: This work is part of a larger study, Project Heart: Health and Resilience in Teens and Moms, funded by the VCU Presidential Research Quest Fund. Extensive health disparities exist between African American/black and white individuals in cardiometabolic disorders. A better understanding of the trajectory of risk, particularly in relation to psychosocial risk and protective factors.

Methods: A cross-sectional descriptive study was conducted in 110 African American/Black biological mother-teen dyads. Variables included fasting lipids, glucose, insulin and c-reactive protein; blood pressure; body mass index; and waist circumference. Psychosocial variables included social support, religious commitment, life events, coping, health behaviors, and measures of family functioning.

Results: Notably, the model with waist circumference explains 29% of the variance in waist circumference. Maternal education and religious commitment are positively associated with waist circumference; life stress is marginally positively associated with WC; current smoking status is negatively associated with WC.

Conclusion: This pattern of findings is entirely consistent with prior work on Shift and Persist (Chen, 2012). In low-income samples, active coping may be counterproductive, if individuals are trying to change uncontrollable stressors. A deeper understanding of the complexities of CMR and protective and risk factors will foster development of interventions in at risk families.
**Objectives:** The purpose of this project is to ascertain rates of cancer screening behaviors among transgender individuals in the United States compared to their cisgender counterparts.

**Background:** Transgender-identified people often face barriers to routine medical care. Gender-specific cancer screening may particularly be overlooked by providers due to lack of training, or not pursued by transgender patients due to concerns about discrimination or invalidation of their gender identity.

**Methods:** This study utilized publically available de-identified secondary data from a representative sample from the Center for Disease Control’s 2014 Behavioral Risk Factor Surveillance System Survey to ascertain rates of cancer screening behaviors. The sample included individuals that designated their gender as transgender male (n=81), transgender female (n=122), transgender gender non-conforming (n=53), cisgender female (n=33,627), or cisgender male (n=22,883), residing in the same states. Transgender groups were compared to cisgender individuals residing in the same states as those self-identified as transgender (DE, HI, ID, IN, IA, KS, KY, and LA). Mammogram, clinical breast exam, pap tests, sigmoidoscopy/colonoscopy, blood stool test, and prostate-specific antigen (PSA) test utilization rates were examined.

**Results:** The demographics of transgender individuals were similar to cisgender individuals, such that the majority were heterosexual (82.3%), white non-Hispanic (70.7%), employed (41.4%), married (46.9%), and reported high school has highest level of education (37.9%). Weighted univariate analyses indicated that transmen versus ciswomen had significantly lower rates for ever having a clinical breast exam (73.9% vs. 89.4%, p=.027, OR=.34), and pap test (73.7% vs. 93.9%, p<.001, OR=.18), but comparable rates for the other exams. Transwomen compared to cismen had significantly similar rates of ever having all exams. Transgender gender non-conforming versus cisgender individuals had significantly lower rates of ever having a blood stool home test (15.7% vs. 34.9%, p=.044, OR=.35), but had comparable rates on all other exams.

**Conclusion:** The current findings are the first to document population-level cancer screening disparities from a random probability sample based on gender identity in the United States, specifically for transmen and gender non-conforming individuals. Physicians should be aware of their patients' gender identity and the standards of care for cancer screenings. Future studies should examine the mechanisms that drive these disparities.