

FOREWORD

Welcome! This year we are celebrating the 11th anniversary of the Carolina Women's Health Research Forum! Thank you to all the participants and attendees who support this forum at the University of South Carolina.

The forum would not be possible without the collaboration and expertise of faculty from other departments, schools, and colleges at USC and Palmetto Health. Please take a moment to review the members of the Forum Steering and Scientific Committees.

Today's keynote speaker is Ashley Blackmon Jones, MD. Her presentation will focus on Perinatal Mental Illness. Dr. Jones is a Clinical Associate Professor of Neuropsychiatry & Behavioral Science and the Assistant Director of the General Psychiatry Residency Training Program at the University of South Carolina School of Medicine.

Dr. James Matthew Orr, Associate Professor of Clinical Family and Preventive Medicine at the University of South Carolina School of Medicine, will provide a presentation focused on finding meaning and purpose in the work place. Dr. Orr is a licensed marriage and family therapist and a former employee of the South Carolina Department of Mental Health. A few special interests of Dr. Orr include ADHD, parent-child relationships, stress reduction and the relaxation response, mindfulness and performance enhancement.

The poster session will feature research abstracts related to many aspects of women's health submitted by researchers and health professionals in multiple disciplines. Palmetto Health / USC School of Medicine OB/GYN resident physicians and 2017 Carolina Women's Health Research Forum poster award winners will provide selected oral presentations. A light lunch will be served.

We hope you will take advantage of ample opportunities for networking today. We sincerely hope the forum will be productive, informative, and valuable for you. Please take a few minutes to complete the SurveyMonkey evaluation that will be emailed to you. We value your input and will use your feedback as we plan for future Women's Health Research Forums.

Thank you.

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Department of Obstetrics and Gynecology
USC School of Medicine

Ivory Harding, B.S.

Forum Coordinator
Department of Obstetrics and Gynecology
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Special Acknowledgements

We extend a special thank you to our sponsors.



We wish to acknowledge
the support of the University of South Carolina School of Medicine in providing
poster display stands for the Forum poster session.





Schedule of Events

- 7:30 – 8:45 a.m. Poster hanging
Registration
- 9:00 – 9:15 a.m. Welcome and Opening Remarks
Fleming Mattox, MD
Forum Chair
Associate Professor, Obstetrics and Gynecology
USC School of Medicine
- Patricia Moore Pastides, MPH
First Lady of the University of South Carolina
- 9:15 – 10:00 a.m. Presentation
Meaning & Purpose at Work: Keys for Professional Engagement & Vitality
James Matthew Orr, PhD
Associate Professor of Clinical Family and Preventive Medicine
Member of the Motivational Interviewing Network of Trainers (MINT)
- 10:00 – 10:45 a.m. Poster Session – Part 1
- 10:45 – 11:15 a.m. Resident Research Presentations
- Implementing a Laparoscopic Training Curriculum*
Blake Chapman, MD
OBGYN Resident, PGY3, Palmetto Health / USC School of Medicine
- Are Women's Perception of their BMI Consistent with their Actual BMI?
Patient Survey of Attitudes toward Health and Weight*
Elizabeth Montague-Farwell, MD
OBGYN Resident, PGY3, Palmetto Health / USC School of Medicine
- 11:15 – 11:30 a.m. Break
- 11:30 – 12:30 p.m. Networking Lunch

- 12:30 – 1:30 p.m. Keynote Presentation
Perinatal Mental Illness: Impact, Identification and Intervention
Ashley Blackmon Jones, MD
Clinical Associate Professor of Neuropsychiatry & Behavioral Science
USC School of Medicine
- 1:30 – 2:15 p.m. Poster Session – Part 2
- 2:15 – 2:45 p.m. Resident Research Presentations
- The Effects of Abdominal Binders on Planned Cesarean Section*
Whitney Shepard, MD
OBGYN Resident, PGY3, Palmetto Health / USC School of Medicine
- Retrospective Analysis of IV Flow Capacity in Obstetric Patients at Risk for Postpartum Hemorrhage*
Jennie Olympio, MD
OBGYN Resident, PGY3, Palmetto Health / USC School of Medicine
- 2:45 – 3:30 p.m. Oral Research Presentations
2017 Forum Poster Award Winners
- Best Student Poster
Left-Right Differences in Triple Negative Breast Cancer Metastasis
Huda Atiya, PhD Candidate
Department of Cell Biology and Anatomy, University of South Carolina School of Medicine
- Best Basic Science Poster
Left-Right Differences in Triple Negative Breast Cancer Metastasis
Huda Atiya, PhD Candidate
Department of Cell Biology and Anatomy, University of South Carolina School of Medicine
- Best Clinical Science Poster
Serum 25-HydroxyVitamin D Concentrations ≥ 40 NG/ML are Associated with >65% Lower Cancer Risk: Pooled Analysis of Randomized Trial and Prospective Cohort Study
Carole Baggerly
Director
GrassrootsHealth, Encinitas, California

Best Social Science Poster

Social Capital and Women's Comorbidities: A Longitudinal Study of Gender Differences in Social Capital and the Risk of Comorbidities

Jennifer Mandelbaum, PhD Candidate

Department of Health Promotion, Education, and Behavior, Arnold School of Public Health, University of South Carolina

3:30 p.m. Summary and Closing Remarks
Fleming Mattox, MD

Conference Abstracts

(Listed Alphabetically by First Author)

AlHasan DM, Lynes CL, Miller M, Sulkowski B and Davis HT DIFFERENCES BETWEEN DEMENTIA, CANCER AND OTHER TYPES OF CAREGIVERS IN SOUTH CAROLINA

Al-Sammarraie NT, Dunphy T, Pradhan I, Booth K, Johnson J, and Mohamad Azhar MYOCARDIAL-SPECIFIC TGFB2 DELETION LEADS TO CUSHION REMODELING DEFECTS AND IMPAIRED RIGHT VENTRICULAR MYOCARDIAL DEVELOPMENT

Atiya HI, Hodge J, Patel SS, Hartstone-Rose A, Fan D and Ramsdell AF LEFT-RIGHT DIFFERENCES IN TRIPLE NEGATIVE BREAST CANCER METASTASIS

Boutté AK, Turner-McGrievy GM, Wilcox S, Liu J, Eberth J and Kaczynski A EXAMINING ASSOCIATIONS BETWEEN BASELINE STRESS, DEPRESSIVE SYMPTOMS, AND DIET QUALITY AMONG DIVERSE PREGNANT WOMEN

Broadway AT, McCarter MSJ and Dickey J REST FOR THE DEPRESSED: A 2016 SC BRFSS ANALYSIS

Brown MR, Carswell D and Freetham S THE S IN SBIRT: PROVIDING PRIMARY PREVENTION FOR MEDICAID WOMEN

Castleberry LA and Melsom EJ POSTPARTUM HEMORRHAGE DUE TO UNDIAGNOSED PLACENTA ACCRETA IN A PATIENT WITH NO KNOWN RISK FACTORS

Chapman B, Sims K, and Cai B IMPLEMENTING A LAPAROSCOPIC TRAINING CURRICULUM

Clerville J, Bolick S and Clugstone S DESCRIPTIVE ANALYSIS OF BREAST CANCER SURGERY TRENDS, SOUTH CAROLINA, 2005-2013

Clugstone S, Lynes C, Hurley D, Nitcheva D and Davis HT SCREENING RECOMMENDATION AND BREAST CANCER INCIDENCE IN SOUTH CAROLINA: A BRFSS AND CANCER REGISTRY ANALYSIS

Davis HT and Lynes C ASSOCIATIONS BETWEEN EXPERIENCING NEGATIVE PHYSICAL AND EMOTIONAL SYMPTOMS DUE TO RACE, AND BOTH SELF-IDENTIFIED AND PERCEIVED RACE/ETHNICITY IN SOUTH CAROLINA WOMEN

Harding I, Burgis J, Dempsey-Fanning A, Tyson A, Billings D and Mattison Faye A THE PLAN STUDY: PROVIDING LARCS TO NEW MOTHERS

Hayes T, Crosby S, Reynolds J, Slayton M, Dove M, Kennington J, Stroner K and Holland K

THE IMPACT OF HIGH LEVELS OF TRAIT RUMINATION ON PSYCHOSOCIAL FUNCTIONING FOR UNDERGRADUATE WOMEN IN RELATIONSHIPS

Leedom VO, Smiley ML, Alhasan DM and Zielk K DISPARITIES IN PREVALENCE OF NEURAL TUBE DEFECTS: EVIDENCE FROM SOUTH CAROLINA'S ACTIVE SURVEILLANCE PROGRAM

Leedom VO, Smiley ML, Alhasan and DM and Zielke K RACIAL AND ETHNIC DISPARITIES IN CARE AND OUTCOMES OF NEURAL TUBE DEFECTS IN SOUTH CAROLINA

Mandelbaum J, Stewart S and Moore S SOCIAL CAPITAL AND WOMEN'S COMORBIDITIES: A LONGITUDINAL STUDY OF GENDER DIFFERENCES IN SOCIAL CAPITAL AND THE RISK OF COMORBIDITIES

McDonnell SL, Baggerly CA, French CB, Baggerly LL, Garland CF, Gorham ED, Lappe JM and Heaney RP SERUM 25-HYDROXYVITAMIN D CONCENTRATIONS ≥ 40 NG/ML ARE ASSOCIATED WITH $>65\%$ LOWER CANCER RISK: POOLED ANALYSIS OF RANDOMIZED TRIAL AND PROSPECTIVE COHORT STUDY

McDonnell SL, Baggerly KA, Baggerly CA, Aliano JL, French CB, Baggerly LL, Ebeling MD, Rittenberg CS, Goodier CG, Mateus Niño JF, Wineland RJ, Newman RB, Hollis BW and Wagner CL MATERNAL 25(OH)D CONCENTRATIONS ≥ 40 NG/ML ASSOCIATED WITH 60% LOWER PRETERM BIRTH RISK AMONG GENERAL OBSTETRICAL PATIENTS AT AN URBAN MEDICAL CENTER

Mohammed Z and Gomez G. ADENOSINE REGULATES CYTOKINE PRODUCTION FROM HUMAN MAST CELLS

Moore S, Heiney S, Lyle M, McLain A, Patel R and Stewart J CHRONIC SOCIAL STRESS AND ACCELERATED AGING AMONG SOUTH CAROLINA WOMEN: INVESTIGATING THE SOCIAL, BEHAVIORAL, AND BIOLOGICAL INFLUENCES ON AGING

Montague-Farwell E, Levy B, Cai B, and Cook J ARE WOMEN'S PERCEPTION OF THEIR BMI CONSISTENT WITH THEIR ACTUAL BMI? PATIENT SURVEY OF ATTITUDES TOWARD HEALTH AND WEIGHT

Moran M, Reitmeier MC, Iachini A, Browne T and Morgan C PREPARING SOCIAL WORKERS FOR BEHAVIORAL HEALTH PRACTICE: IMPACTS FOR WOMEN AND WOMEN IN RURAL AREAS

Olympio J, Theobald S, Castillo A, Cai B, Schrifft D, and Castleberry L RETROSPECTIVE ANALYSIS OF IV FLOW CAPACITY IN OBSTETRIC PATIENTS AT RISK FOR POSTPARTUM HEMORRHAGE

Patel SS, Robichaux JP, Soloff AC, Fuseler JW and Ramsdell AF NEONATAL ESTROGEN EXPOSURE ELICITS LEFT-RIGHT ASYMMETRIC MAMMARY EPITHELIAL CELL COMPOSITION AND MORPHOGENESIS

Shepard W, Cai B, and Aguirre F PLANNED CESAREAN SECTION AND POSTPARTUM RECOVERY AND QUALITY OF LIFE

ABSTRACTS

DIFFERENCES BETWEEN DEMENTIA, CANCER AND OTHER TYPES OF CAREGIVERS IN SOUTH CAROLINA

Dana M. AlHasan, MPH^{1,2}, Chelsea L. Lynes, MSPH^{1,2}, Maggi Miller, MS, PhD³, Beth Sulkowski⁴, and Harley T. Davis, MSPH, PhD²

¹Department of Epidemiology and Biostatistics, University of South Carolina; ²Division of Surveillance, Bureau of Health Improvement and Equity, Department of Health and Environmental Control, South Carolina; ³Office for the Study of Aging, Arnold School of Public Health, University of South Carolina; ⁴Alzheimer's Association, South Carolina Chapter

Abstract

Background and Significance: Social, emotional and financial burdens experienced by caregivers have been well documented¹ and disproportionately affect women². In fact, approximately two-thirds of caregivers are women². Burden experienced by types of caregivers also differs, with greater effects on dementia caregivers compared to other types of caregivers¹. As the population ages, the incidence of dementia is anticipated to increase^{3,4} leading to a greater reliance on caregivers⁴. As a result of this shift, there will be a greater need for research focused on understanding caregiver burden. This study aims 1) to describe sociodemographic characteristics and caregiver impact by caregiver type (dementia, cancer and other types) in South Carolina (SC) in 2015 and 2) to describe the geographical distribution of support groups compared to dementia caregiver prevalence by regions in SC.

Methods: We obtained data for 2015 from the Behavioral Risk Factor Surveillance System (BRFSS) and compared sociodemographic characteristics and caregiver impact among types of caregivers using SAS software, Version 9.4. We mapped number of support groups compared to dementia caregiver prevalence among the nine BRFSS regions in SC using Arc GIS Version 10.2.2.

Results: About 25% (n=2,410) of survey respondents were caregivers. Of these, 9% (n=218) care for someone with dementia, 8% (n=186) care for someone with cancer, and 83% (n=1,859) care for someone with another disease (e.g., asthma). In general, caregivers were more likely to be female (57.8%), middle-aged (43.8%; 35-54 years old), non-Hispanic white (67.3%), highly educated (55.3%; some college or more), employed (54.3%), and low income (47.0%; <\$35,000). Most caregivers care for a parent (29.3%) or other relative (31.5%), as compared to spouse, sibling or child, and were responsible for managing household tasks (82.6%). Dementia caregivers were significantly more likely to take care of a grandparent or parent, spend longer durations providing care, and manage personal care (e.g., bathing) compared to other types of caregivers. Dementia caregivers also were more likely to report needing support services, such as classes about giving care (4%), support groups (3%), and respite care (7%).

Conclusions: Overall, there appears to be evidence of caregiver impact disparities among dementia caregivers compared to other types of caregivers in SC. Dementia caregivers also expressed needing support services. Future research should include longitudinal analysis of causal factors related to burden for several types of caregivers, with emphasis on dementia caregivers.

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Category: **Social Science**

MYOCARDIAL-SPECIFIC TGFB2 DELETION LEADS TO CUSHION REMODELING DEFECTS AND IMPAIRED RIGHT VENTRICULAR MYOCARDIAL DEVELOPMENT

Nadia T. Al-Sammarraie, Taylor Dunphy, Ipsita Pradhan, Kayce Booth, John Johnson, Mohamad Azhar

Department Of Cell Biology And Anatomy, University Of South Carolina School Of Medicine, Columbia, SC

Abstract

Background and Significance: TGF β 2 is produced by multiple cardiac or extra-cardiac cell types during heart development. TGF β 2 mutations and/or dysregulation have been reported in overlapping connective tissue disorders, Marfan and Loeys-Dietz syndromes, that carry significant cardiovascular complications which are exacerbated in female patients during and after pregnancy. Our laboratory has generated Tgfb2flox mice to determine the function of cell-specific TGF β 2 during cardiogenesis.

Methods and Results: Here we showed that mesodermal cell-specific Tgfb2 conditional deletion (via Nkx2.5Cre mice) led to cardiac cushion remodeling and septation defects, and impaired ventricular myocardial development. Since Nkx2.5Cre mice has been shown to drive cre expression in myocardium and other cardiac cell types including endothelial cell lineage, cTntCre mice were used to specifically delete Tgfb2 in the early cardiomyocytes. Loss of myocardialTgfb2 resulted in hyperplastic cushions and muscular form of ventricular septal defect (VSD). In addition, loss of early cardiomyocyte-produced TGF β 2 resulted in thinned myocardium at the mid-gestation stage. Development of the right ventricular (RV) myocardium, which is distinctly originated from the second-heart field (SHF), was particularly affected in the absence of cardiomyocyte-produced TGF β 2 suggesting that cardiomyocyte-produced TGF β 2 is required ventricular myocardium homeostasis during cardiogenesis. In conclusion, we showed that early cardiomyocyte-produced TGF β 2 is required for proper cushion remodeling and ventricular myocardial development and homeostasis. This result is in contrast with previous findings reported by others demonstrating that cardiac development is not seriously affected in mice lacking the TGF β Type II or Type I receptor in the myocardium.

Conclusion: Thus, our results suggest a potential paracrine role of early cardiomyocyte produced TGF β 2 in regulation of cell-cell interactions between the myocardium and other cardiac cell types including endothelial, epicardial, and second heart field (SHF) cell lineages during cardiogenesis

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Category: **Basic Science**

This poster has been presented in Weinstein Cardiovascular Development and Regeneration Meeting, Columbus, Ohio; May 2017

LEFT-RIGHT DIFFERENCES IN TRIPLE NEGATIVE BREAST CANCER METASTASIS

Huda I. Atiya¹, Johnie Hodge¹, Shruti S. Patel¹, Adam Hartstone-Rose¹, Daping Fan¹, Ann F. Ramsdell^{1,2}

¹Department of Cell Biology and Anatomy, University of South Carolina School of Medicine. ²Program in Women's and Gender Studies, College of Arts and Sciences, University of South Carolina, Columbia, South Carolina

Abstract

Background and Significant: The heterogeneity of breast cancer poses a formidable challenge for effective treatment, risk management, and disease prevention. Known causes of tumor heterogeneity include differences in cell of origin and driver mutations; however, even when accounting for these, there remain considerable genomic heterogeneities, indicating the existence of other important, albeit yet to be identified sources. In addressing the problem of breast tumor heterogeneity, we have identified another significant source: left-right (L-R) positional identity. We have recently reported that despite their identical appearance and function, the left and right breasts have unique developmental histories, including embryonic patterning of the stromal compartment. We hypothesize that one consequence of L-R differences in the stroma is to promote lateralized differences in microenvironmental regulation of tumors when neoplasia occurs. To test this, we evaluated effects of the left versus right mammary microenvironment on tumor growth and progression using the syngeneic 4T1 triple negative breast cancer mouse model. **Methods:** Luciferase-expressing 4T1 metastatic carcinoma cells were injected into either left or right mammary glands of adult female mice. Cell viability and tumor take were confirmed by imaging luciferase activity. Upon sacrifice, primary tumors and lung tissues were harvested. Primary tumors were used either to examine the tumor histology or to quantify tumor-associated macrophages. Lung tissue were processed to quantify lung metastasis.

Result: Our result showed that there were significant L-R differences in the number of mice showing macro-metastatic lung lesions (33% left group vs. 83% right group; N=12, P<0.05). Assessment of tumor volume by caliper measurement, IVIS luciferase imaging, and endpoint tumor mass indicated that attenuated metastasis of left tumors was not due to slower tumor growth. We next investigated histology of the primary tumors, which showed that left tumors are less invasive into adjacent muscle, have reduced collagen deposition, and contain fewer tumor-associated macrophages, indicators of decreased tumor aggression.

Conclusion: Collectively, our results demonstrate that the L-R mammary microenvironments are significantly different in supporting breast tumor progression and metastasis. To determine how the left side microenvironment attenuates these processes, we are starting to conduct RNA-Seq analysis of left versus right mammary tissues and tumors for identification of genes and pathways that asymmetrically regulate the metastatic cascade.

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Category: **Basic Sciences**

EXAMINING ASSOCIATIONS BETWEEN BASELINE STRESS, DEPRESSIVE SYMPTOMS, AND DIET QUALITY AMONG DIVERSE PREGNANT WOMEN

Alycia K. Boutté¹, Gabrielle M. Turner-McGrievy¹, Sara Wilcox^{2,3}, Jihong Liu⁴, Jan Eberth⁴, Andrew Kaczynski¹

¹Department of Health Promotion, Education, & Behavior, ²Department of Exercise Science, ³Prevention Research Center, ⁴Department of Epidemiology & Biostatistics, University of South Carolina, Columbia, South Carolina

Abstract

Background and Significance: Optimal diet quality during pregnancy is important for increasing the chances of successful birth outcomes. During pregnancy, women have increased risk of experiencing stress and depressive symptoms, both of which have been associated with poor diet quality. According to 2013 SC Pregnancy Risk Assessment Monitoring System data, African-American (AA) women experience disproportionately high levels of stress compared to white women (29% vs. 21.5%). Few studies have examined racial differences in these factors among women who begin pregnancy overweight or obese. Our purpose was to examine the associations between baseline stress, depressive symptoms, and diet quality among women enrolled in the Health in Pregnancy and Postpartum (HIPP) study.

Methods: HIPP is a randomized controlled trial targeting excess gestational weight gain (GWG) among overweight and obese pregnant women in South Carolina (N=133 enrolled to date). Baseline demographic and psychosocial data were collected through self-report surveys. Participants completed two ASA24 diet recalls. Pearson correlations, t-tests, and linear regression models were used to summarize the data.

Results: At baseline, participants were racially-diverse (65% White, 34% AA), young (mean age=30), and generally well-educated (60% college graduates). Participants had low levels of stress (mean Perceived Stress Scale score= 4.7±3.2 points, max=16 points) and depressive symptoms (mean Edinburgh Prenatal/Postnatal Depression Scale score= 5.7±3.9 points, max=30 points). Participants had poor diet quality (mean Healthy Eating Index (HEI) score = 50.5±12.6; max score=100). Stress had a weak negative relationship with total HEI scores ($r=-0.20$; $P=0.02$), while depressive symptoms were not significantly related to total HEI scores ($r=-0.11$; $P=0.19$). There were no differences in stress, depressive symptoms, or overall HEI scores by race (P 's all >0.05). AA participants had significantly higher refined grain consumption (6.6±3.18 oz.) compared to their White counterparts (5.3±3.4 oz.; $P=0.04$). There were no racial differences in the other HEI diet components. Perceived stress significantly predicted lower HEI scores ($b=-0.80±0.34$, $P=0.02$), while depressive symptoms did not significantly predict HEI scores ($b=-0.37±0.28$, $P=0.19$). Race did not moderate the relationship between stress and HEI scores ($b=0.10±0.69$, $P=0.88$).

Discussion: Overall, higher stress significantly predicted lower diet quality among HIPP participants and overall diet quality was poor; however, race was not a moderator. Future research should examine if stress management interventions can improve diet quality in pregnancy.

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Category: **Social Science**

This work has been submitted to the Society of Behavioral Medicine conference in the Spring.

REST FOR THE DEPRESSED: A 2016 SC BRFSS ANALYSIS

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²School of Nursing, Eastern Michigan University, Ypsilanti, MI.

Abstract

Background: There has been abundant research on the association between sleep quality and adverse health conditions. However, most research examines insufficient sleep as the exposure; excessive sleep is rarely assessed. A few studies have suggested that deviation from normal hours of sleep, both in deficiency and in excess, is associated with poor health outcomes, including depression.

Research Question: Is depression associated with bidirectional deviation from normal sleep hours among adults in South Carolina (SC)?

Methods: Data were obtained from the 2016 SC Behavioral Risk Factor Surveillance Survey (BRFSS). The exposure and outcome were obtained through responses to answers from the survey. Depression status was determined by the response to the question, "Has a doctor, nurse, or other health professional ever told... you that you have a depressive disorder, including depression, major depression, dysthymia, or minor depression?" Hours of sleep were determined by the response to the question, "On average, how many hours of sleep do you get in a 24-hour period?". Respondents who did not know or refused to answer were excluded from the sample (n=10982). Separate analyses were used for inadequate sleep (<7 hours of sleep) and excess sleep (10+ hours of sleep), and compared with adequate sleep (7-9 hours). Survey logistic regression was used to obtain crude odds ratios (OR) and adjusted odds ratios (aOR) and their associated 95% confidence intervals (CI). The adjusted model controlled for several potential confounders; these included age, race, sex, BMI category, and exercise in the past month.

Results: People who reported having been diagnosed with depression had nearly twice the odds (OR: 1.88; 95% CI: 1.63-2.16) of sleeping below 7 hours, and twice the odds (OR: 2.0; 95% CI: 1.51-2.65) of sleeping above 10 hours than people not diagnosed. After adjusting for several confounders, the odds of sleeping below 7 hours were not significantly affected (aOR 1.87; 95% CI: 1.61-2.17), nor were the odds of sleeping above 10 hours (aOR 1.97; 95% CI: 1.45-2.68).

Conclusions: Depression appears to be associated with both excess sleep and inadequate sleep in SC adults. This is consistent with the literature we reviewed, which shows a U-shaped curve in the association between sleep duration and adverse health effects, including depression. This should be interpreted with caution though, as this is subject to reverse causality bias. Due to the nature of the study, we were limited in our ability to assess temporal associations between poor sleep and depression, and our outcome categorizing hours of sleep is a limited metric for inferring overall sleep quality.

Possible Public Health Implications: While sleep hygiene, and healthy sleep behaviors are important for obtaining adequate sleep, hypersomnia and insomnia are common symptoms of depressive disorders. It is not clear how the sleep wake cycle specifically impacts, or is impacted by depression. However, given the associated physiological risks of poor sleep, emphasizing better care of patient mental health, in this case, depression, may be an effective means for patients to improve on physical health.

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Category: **Clinical Science**

THE S IN SBIRT: PROVIDING PRIMARY PREVENTION FOR MEDICAID WOMEN

Maudra R. Brown, MPH CHES APM; Demetria Carswell MBA; Stephen Freetham, MS

SC Department of Health and Human Services

Abstract

Background and Significance:

Launched in 2011, the Screening, Brief Intervention, and Referral to Treatment (SBIRT) initiative was featured as one of SC Birth Outcomes Initiative's core programs. Its goals are to implement the universal screening and referral tool (SBIRT) in Medicaid obstetrics provider offices to screen women through pregnancy to 12 months postpartum for tobacco use, substance abuse, alcohol, depression, and domestic violence. SBIRT's approach is to deliver early intervention and treatment to people with substance use disorders and those at risk of developing these disorders.

Methods:

Driven by the model developed by the Institute of Medicine, SC Department of Health and Human Services (SCDHHS) has used SBIRT to drastically increase screening and integrate a practice based protocol for Medicaid providers by addressing health risk behaviors through standardized screening and referrals. The current program, with SCDHHS is specific to pregnant women to include 12 months postpartum. It is implemented using a reinforcement reimbursement model as a payer, to assist Medicaid providers for using the screening tool and motivational interviewing techniques within their practices. This policy level implementation, a best practice derived from the success of the SC Birth Outcomes Initiative in addressing the health of moms and babies, has turned a focus on the screening and referral to resources for these women.

Results:

Each year of implementation, SBIRT continues to grow and improve. Through collaboration with SCDHHS' sister state agencies, public and private partnerships, the program has flourished and 1 in 4 women with a live birth participated in SBIRT, a 61% improvement since full implementation in 2013. 97% of screenings were covered by a Managed Care Organization, showing clear and promising value in SBIRT-practices and providers buy-in.

Discussion and Conclusion:

SBIRT's success in collaboration and increase in screening across South Carolina will continue to improve with the greater awareness with providers, and supportive work through cooperative networks. Examples of this include interdisciplinary collaboration and implementation of SBIRT Curricula within the medical residency and fellowship programs at the University of South Carolina Health Systems. Additionally, the Substance Abuse and Mental Health Services Administration (SAMHSA) and the Health Resources and Services Administration (HRSA) funded SBIRT implementation in major emergency departments and primary care offices across South Carolina. Although there are tools and incentives for providers to perform this evidence based practice, many barriers persist, both for the patient and provider. Key barriers identified are as follows:

Prenatal care Benefit category Referral linkages Provider shortages

References:

SBIRT. (n.d.). Retrieved September, 2017, from <https://www.integration.samhsa.gov/clinical-practice/SBIRT>

Alcohol Misuse: Screening and Behavioral Counseling Interventions in Primary Care. (n.d.). Retrieved September, 2017, from

<https://www.uspreventiveservicestaskforce.org/Page/Document/UpdateSummaryFinal/alcohol-misuse-screening-and-behavioral-counseling-interventions-in-primary-care>
Screening, Brief Intervention and Referral to Treatment (SBIRT). (n.d.). Retrieved September, 2017, from <https://www.scdhhs.gov/organizations/screening-brief-intervention-and-referral-treatment-sbirt>

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SC Department of Health and Human Services, SC Birth Outcomes Initiative, SCDHHS Office of Reporting Research and Special Projects, SC Department of Mental Health, SC Department of Health and Environmental Control, SC Department of Alcohol and Other Drug Abuse Services

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Category: **Social Science**

Figure 1

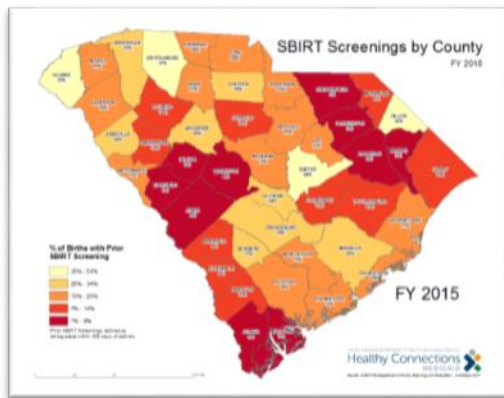
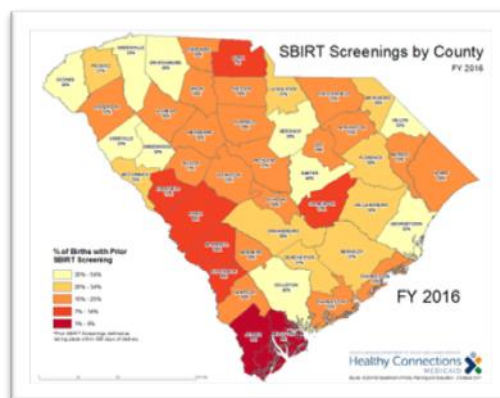


Figure 2



POSTPARTUM HEMORRHAGE DUE TO UNDIAGNOSED PLACENTA ACCRETA IN A PATIENT WITH NO KNOWN RISK FACTORS

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Background: Incidence of placenta accreta has increased with increasing cesarean deliveries. Risk factors include advanced maternal age, placenta previa, and a history of myometrial damage. An isolated elevated Alpha Fetoprotein (AFP) coexisting with placenta previa suggests abnormal placentation.

Case: A 25-year-old term multiparous patient was induced for gestational hypertension. Her only complication was an isolated elevated AFP. At delivery, the placenta was not intact. Curettage for remaining tissue resulted in minimal bleeding. Sixteen days later postpartum hemorrhage occurred; retained products were suspected. Persistent bleeding resulted in hysterectomy. Pathology confirmed placenta accreta/early increta.

Conclusion: In patients with isolated elevated AFP, identification of placenta previa increases suspicion for abnormal placentation; however, this patient did not have one. Additional studies may help demonstrate an isolated elevated AFP increases the risk for placenta accreta even when a placenta previa is absent.

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Category: **Clinical Science**

Abstract has been accepted for presentation at the South Atlantic Association of Obstetricians and Gynecologists (SAAOG) regional meeting January 2018.

IMPLEMENTING A LAPAROSCOPIC TRAINING CURRICULUM

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Abstract

Background and Significance: With the increasing demand for gynecological laparoscopic procedures, comes an increasing demand for laparoscopic training in residency. Although animal models have shown to be consistent and valid, there is considerable cost and setup time.¹ An alternative to animal models are bench-top laboratory simulators for both training and assessment of surgical skill.²

Our residency program had no minimally invasive curriculum. We set out to implement and prospectively evaluate a simulator-based minimally invasive training curriculum at our residency program.

Methods: All residents at the University of South Carolina OB/GYN Program were asked to participate in the minimally invasive curriculum. Only PGY-1 and PGY-2 residents in our OBGYN program were assessed in the laparoscopic tasks. Our curriculum consists of didactic modules from the Council on Resident Education in Obstetrics and Gynecology (CREOG), lectures given by faculty, simulation and demonstration of proficiency during live surgery in the operating room.

Three laparoscopic tasks were used for assessment of PGY-1 and PGY-2 residents. These tasks are increasing in levels of difficulty. There was an initial assessment at the beginning of the first month of the academic year to provide a baseline score. Residents were required to document at least four hours of practice per month; with time allotted during off-service months for each resident. A senior resident or attending physician supervised and scored each resident on the task. The tasks were then reassessed the following Spring.

Mean time to complete each task was tabulated as well as any penalty that may be occurred during timing. Differences in times between baseline and Spring evaluation were computed. The mean time from the 2nd assessment of the 1st year residents were also compared to the baseline assessment of the 2nd year residents.

Results: By participating in the Minimally Invasive Curriculum, all residents were able to develop and practice their skills in a safe environment. Task completion time was used as the principle outcome measure in this training curriculum. PGY1 and PGY2 residents participating in the study improved their times to complete tasks significantly. On the two most difficult tasks, the PGY1 2nd assessment time was statistically shorter than the PGY2 baseline assessment time (jar $p < 0.001$; loops and wire $p = 0.005$). Improvements in times to completion of the three tasks were appreciated by spending time in the training room. There was not a direct correlation in the amount of time spent.

Conclusion and Discussion: Based on the implementation of a minimally invasive curriculum and observing PGY1 and PGY2 residents using the curriculum, there was a decrease in the time to complete each task. Residents were also introduced and familiarized with instruments prior to the Operating Room. A limitation of this study was the small sample size of the group. Further studies could consider utilizing a questionnaire for self-assessment as well as having faculty correlate improvement in times of the skills with skills in the operating room.

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Category: **Clinical Science**

DESCRIPTIVE ANALYSIS OF BREAST CANCER SURGERY TRENDS, SOUTH CAROLINA, 2005-2013

Jacques Clerville, MD, MPH¹, Susan Bolick, MSPH, CTR², and Stephanie Clugstone, MSPH²

¹Haitian Ministry of Public Health (MSPP)

²South Carolina Department of Health and Environmental Control

Background: Over the last decade, several researchers have found an increase in the rate of contralateral prophylactic mastectomy across the United States despite the limited evidence on survival improvement associated with this surgery. Information on contralateral prophylactic mastectomy (CPM) in South Carolina was unknown. We evaluated the trends of different breast cancer surgery types and emphasized the CPM trends and rates in South Carolina from 2005 through 2013.

Research Question: Has the rate of CPM for women diagnosed with breast cancer in SC changed over a nine year period, 2005-2013, and is it different by race and ethnicity for this time period?

Methods: We conducted a descriptive analysis of CPM in South Carolina among females who underwent surgery for breast cancer, from 2005 through 2013, and compared its trend over time with other type of surgeries performed. We used the data from the South Carolina Central Cancer Registry, a population-based cancer registry, to carry out our analyses.

Results: We found that 1,587 (4.66%) females who were surgically treated for breast cancer underwent CPM. The overall rate increased from 3.03% in 2005 to 5.25% in 2013. Among Whites, the rate increased from 2.75% to 4.24%; among Blacks, it increased from 0.18% to 0.92%. Among non-Hispanics, the CPM rate increased from 2.94% in 2005 to 5.08% in 2013; they represented 97.3% of the total number of CPMs performed. Meanwhile, the unilateral mastectomy rate decreased from 23.62% in 2005 to 17.97% in 2013; the breast-conserving surgery rate was steady.

Discussion and Possible Public Health Implications: Overall, the CPM rate increased in South Carolina for the period 2005-2013 among Blacks, Whites, and non-Hispanics. Further research should be done to identify the risks factors for CPM among females diagnosed with breast cancer in South Carolina. Also, studies should continue to evaluate any impact on breast cancer survival rates through utilization of CPM.

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Category: **Clinical Science** (Descriptive Analysis of Cancer Surveillance Data)

Previously presented:

DHEC Data Symposium - 10/05/2017

North American Association of Central Cancer Registries Annual Conference - 6/10/2017 (as oral presentation)

SCREENING RECOMMENDATION AND BREAST CANCER INCIDENCE IN SOUTH CAROLINA: A BRFSS AND CANCER REGISTRY ANALYSIS

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¹South Carolina Central Cancer Registry, South Carolina Department of Health and Environmental Control (SC DHEC); ²Division of Surveillance, SC DHEC; ³Division of Biostatistics, SC DHEC

Background and significance: The United States Preventive Services Task Force recommends all women ages 50-74 receive a mammogram every two years. However, the literature shows there are racial disparities in female breast cancer (BC) screening, incidence, and mortality. We investigated these disparities in South Carolina (SC).

Methods: Screening data were obtained from the SC Behavioral Risk Factor Surveillance System (BRFSS) for 2013 (n = 3,107). BC data were obtained from the SC Central Cancer Registry for 2011-2013 (n= 8,773). Incidence and mortality rates, proportions, and 95% confidence intervals (CIs) were calculated for mammography screening, insurance coverage, stage, and hormone receptor status.

Results: Significantly more blacks (84.4%; 95% CI: 80.9-87.9) met the mammogram recommendation than whites (76.0%; 95% CI: 73.4-78.7). Among those who met the screening recommendation, significantly more whites had health insurance than blacks, and, on average, blacks were significantly younger than whites. Whites had a significantly higher incidence rate than blacks (330.8 and 310.4 cases per 100,000 women, respectively [p-value: 0.03]). Blacks had a significantly lower proportion of early stage diagnosis (65.6%) than whites (73.6%). Blacks had higher proportions of the more aggressive triple negative (TN) and HER2 positive breast cancers than whites (15.0% vs. 6.6% and 14.0% vs. 11.5%, respectively). TN is more commonly found at late stage diagnosis, and more frequently among blacks than whites. More blacks (20%) were diagnosed with late stage TN breast cancer than white women (9.3%). Further, blacks had a significantly higher mortality rate than whites (70.5 and 46.3 deaths per 100,000 women, respectively [p-value: <0.001]).

Conclusions: Although the analysis has some limitations, these findings generally agree with the literature. Further research is needed to assess the inverse relationship between screening and insurance coverage with later stage cancer for black women and, higher incidence rates for white women.

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Category: **Clinical Science**

This work was previously presented at the North American Association of Central Cancer Registries 2017 Annual Conference in Albuquerque, NM on Wednesday, June 21, 2017.

ASSOCIATIONS BETWEEN EXPERIENCING NEGATIVE PHYSICAL AND EMOTIONAL SYMPTOMS DUE TO RACE, AND BOTH SELF-IDENTIFIED AND PERCEIVED RACE/ETHNICITY IN SOUTH CAROLINA WOMEN

Harley T. Davis and Chelsea Lynes

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Abstract

Background and Significance: While self-identified race can be associated with both positive and negative health behaviors and outcomes, how an individual's race is perceived by others can also impact health. The objective of this study was to examine associations between negative physical and emotional symptoms in females for both self-identified and perceived race in South Carolina (SC).

Methods: Data from the 2016 SC Behavioral Risk Factor Surveillance System (BRFSS) were utilized, and were restricted only to females (n = 6,634). Responses to questions on thoughts about race, treatment based on race, and physical or emotional symptoms related to treatment based on race were compared between self-identified and perceived race/ethnicity categories. Logistic regression models were examined for the physical and emotional symptom outcomes (yes/no), which were additionally adjusted for self-identified and perceived race/ethnicity, age group, income group, and overall general health.

Results: Overall, 95.7% of women self-identified their race/ethnicity as the same as which they were perceived. Non-Hispanic black women were significantly more likely to report thinking about their race constantly as compared to non-Hispanic white women (20.7% vs. 1.3%), and feel that they were treated worse than other races at work (20.9% vs. 5.6%) and when seeking health care (11.1% vs. 2.6%). The same pattern was seen for women perceived as white and black. Non-Hispanic black women had higher odds of reporting both negative emotional (OR = 4.65, 95% CI: 3.52, 6.15) and physical (OR = 3.89, CI: 2.65, 5.72) symptoms within the last 30 days based on race than non-Hispanic white women in crude models. Again, the same pattern was observed for those perceived as white and black in crude logistic models. In adjusted models, only self-identified race (non-Hispanic black) remained associated with higher odds of both physical and emotional symptoms.

Discussion: These results show that non-Hispanic black women, both self-identified and perceived, reported worse treatment based on their perceived race at work and when accessing medical care, and had higher odds of reporting negative physical and emotional symptoms based on their perceived race. These associations remained significant after adjustment for other demographics, and were stronger for self-identified as compared to perceived race. While the self-identified race of most women in the study matched their perceived race, future studies should focus on those women who reported different self-identified and perceived races, and examine associations with additional health outcomes.

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Category: **Social Science**

THE PLAN STUDY: PROVIDING LARCS TO NEW MOTHERS

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Abstract

Background and Significance: South Carolina was the first state to institute a Medicaid policy allowing hospitals to receive full reimbursement for inpatient post-partum long acting reversible contraceptives (LARC) in 2012; however, this coverage excludes women covered by Emergency Medicaid. The PLAN Study sought to establish the need for and acceptance of women with Emergency Medicaid coverage for labor and delivery receiving LARC services at no cost. This study evaluated the acceptability of immediate postpartum no-cost LARCs for women with Emergency Medicaid coverage through three aims: 1) Document how many choose a LARC, other contraceptive method, tubal ligation, or no contraceptive method by the time they are discharged from the hospital, and reason(s) for their decision 2) Describe past contraceptive methods used, contraceptive counseling received during their most recent pregnancy and their hospital stay, and their experience with LARC insertion (if choosing a LARC during the current hospital stay) and 3) Compare LARC uptake between women who received prenatal care that includes contraceptive counseling prior to delivery versus women who did not.

Methods: Three hospital sites participated in this cross-sectional study between November 2016 and May 2017: Greenville Health System (GHS), Palmetto Health Richland (PHR), and the Medical University of South Carolina (MUSC). Eligible patients were at least 18 years of age and qualified for Emergency Medicaid during delivery admission. Data were collected through patient surveys, chart audits, and provider interviews. Funding and research support was provided by New Morning Foundation.

Results: Among 227 participants enrolled, 41% selected an IUD or implant. When comparing pre-delivery documented contraception plans with method recorded at discharge, we found an increase in those choosing implant (pre= 18%, postpartum=26%) and a decrease in no method (pre= 26%, postpartum=15%), IUD (pre=17%, postpartum= 15%, and tubal ligation (pre= 20%, postpartum=15%). Contraceptive counseling was recorded in most inpatient records (81%) and prenatal records (76%). Among those receiving LARC prior to discharge, 79% were very satisfied with the insertion.

Discussion: LARC methods were commonly selected postpartum by patients. Barriers that prevented the greatest impact on this population included overestimation of potential reach at one L&D site, turnover of staff and rotation of residents that resulted in miscommunication, and shortage of translation services due to a high number of non-English speaking patients and hospital policies. Future studies will aim to provide patient education and materials earlier in the patient's pregnancy and recruit a Spanish-speaking coordinator for Spanish-speaking women to ensure translations are culturally relevant and increase rapport and trust with the patient.

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Category: **Social Science**

THE IMPACT OF HIGH LEVELS OF TRAIT RUMINATION ON PSYCHOSOCIAL FUNCTIONING FOR UNDERGRADUATE WOMEN IN RELATIONSHIPS

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Background and Significance: Trait rumination has been associated with negative impacts on overall quality of life for women in relationships, such as relationship satisfaction and academic success (McIntosh & Martin, 1992). The literature associating trait rumination with psychosocial factors that contribute to overall quality of life is robust, with high levels of trait rumination being associated with increased social maladjustment (Defenbacher, 1992), and academic performance. Two inventories have been recently developed to assess these factors. The Academic Success Inventory for College Students (ASICS) measures interpersonal and psychosocial factors that can peripherally influence school performance (Prevatt et al. 2011). The Couples Satisfaction Inventory (CSI) is a reliable inventory for operationalizing the construct of relationship satisfaction, and has been validated in other studies as well (Schlagintweit, Bailey & Rosen, 2016). We predicted that high levels of trait rumination would have an overall negative effect on academic success and relationship satisfaction for women in relationships.

Methods: One hundred and fourteen women and 66 men completed ASICS and the Anger Rumination Scale (ARS). The ASICS assesses factors related to school performance (i.e.: organizational and goal setting skills) as well as psychosocial factors (i.e.: motivation, level of support, and situational factors). The ARS is a 29-item questionnaire that assesses trait rumination and contains 19 items that respondents endorse on a 4-point Likert-type scale. Sixty-three women and 31 men reported being in a relationship, and completed the Couple Satisfaction Index (CSI) in addition to the ASICS and ARS. The CSI is a 32-item questionnaire that examines a participant's satisfaction within their current romantic relationship. The CSI measures multiple aspects of how well a couple functions, including compatibility, tendency to think of others outside the relationship, and level of attraction.

Results: To assess trait rumination as a predictor for relationship satisfaction and academic success for women in relationships, we ran a series of simple linear regression analyses. The first regression analysis revealed that higher scores on the ARS were associated with lower scores on the CSI ($F(1, 60) = 15.808, p < .0001, R^2 = .21$). With respect to academic success, regression analysis revealed that high trait ruminators also had lower scores on the ASICS ($F(1, 60) = 4.057, p = .04, R^2 = .063$). As predicted, CSI scores served as a meaningful predictor for academic success ($F(1, 60) = 4.088, p = .04, R^2 = .064$), with higher levels of relationship satisfaction indicating greater academic success for women in relationships. When assessing sex differences in men and women in relationships, we conducted an independent measures *t*-test and found no difference in CSI scores measuring relationship satisfaction. We did, however, find that women in relationships reported higher levels of trait rumination relative to men in relationships ($t(93) = 2.255, p = 0.02$).

Discussion: The results support our hypothesis in that we found significant correlations between high trait rumination and decreased levels of academic success and relationship satisfaction for women who reported being in a relationship. Women who reported being unsatisfied in their relationship reported a lower level of academic success. Moreover, women who were high trait ruminators also reported lower levels of relationship satisfaction as well as lower levels of academic success. This research is unique in that it examines the influences of psychosocial factors (trait rumination) that impact school performance which cannot be seen by examining GPA alone. Moreover, we found that women in relationships evidenced higher levels of trait rumination relative to those of men in relationships, although both men and women in relationships reported similar levels of relationship satisfaction. Overall, the results

support that high trait rumination adversely impacts the overall quality of life for women in relationships with respect to the psychosocial factors of academic success and relationship satisfaction.

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DISPARITIES IN PREVALENCE OF NEURAL TUBE DEFECTS: EVIDENCE FROM SOUTH CAROLINA'S ACTIVE SURVEILLANCE PROGRAM

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Background and Significance: Folic acid supplementation prior to pregnancy has been shown to prevent neural tube defects (NTD). However, to be effective, disseminating information regarding folic acid supplementation and NTD prevention needs to be delivered in a culturally competent fashion. In the United States, there are nearly 3,000 pregnancies each year that result in a NTD that disproportionately affects Latino/Hispanic women of any race. Specifically in South Carolina, Latino/Hispanic infants of any race make up the biggest ethnic minority group, and this group continues to grow. We examined data from a statewide birth defects active surveillance program to describe NTD prevalence by race/ethnicity and assess for any existing disparities while accounting for confounders, such as insurance status and education.

Methods: The analysis included South Carolina pregnancies from January 1, 2010 to December 31, 2014 that received ICD 9 codes for NTD (anencephaly, spina bifida, encephalocele, and holoprosencephaly) reported by South Carolina hospitals and confirmed by nurse abstractors as definite, true cases (n = 189). These data were analyzed to determine whether disparities existed in the prevalence of NTDs in South Carolina.

Results: Latino/Hispanic pregnancies were significantly more likely than either white, non-Hispanic pregnancies or black, non-Hispanic pregnancies to have an NTD. The prevalence of NTD among Latino/Hispanic pregnancies was 21.3 per 10,000 live births, compared to 15.1 per 10,000 live births among non-Hispanic white pregnancies. Between 2010 and 2014, 50 Latino/Hispanics infants or fetuses had NTD. The most prevalent NTD among Latino/Hispanic pregnancies were holoprosencephaly (n = 29), anencephalus (n = 8), and encephalocele (n = 5). Hispanic mothers of infants or fetuses with NTD were less likely than non-Hispanic white mothers of infants or fetuses with NTD to have private insurance, more likely to be uninsured, and more likely to have less than a high school education.

Discussion: Similar to national findings, there is a significant ethnic disparity in NTD prevalence in South Carolina, with Latino/Hispanic pregnancies being disproportionately affected. This analysis provides preliminary insight that additional culturally appropriate education and awareness regarding NTD prevention may be needed among providers who serve Latino/Hispanic families in South Carolina. Additional research can consider assessing geographic disparities of NTD prevalence among Latino/Hispanic families in order to determine how access to care plays a role. Further, such information can be used to determine whether vitamins with folate are readily available for women of childbearing age in areas with high prevalence of NTD as well as whether fortified foods are available in local ethnic grocery stores.

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Category: **Clinical Science**

RACIAL AND ETHNIC DISPARITIES IN CARE AND OUTCOMES OF NEURAL TUBE DEFECTS IN SOUTH CAROLINA

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Background and Significance: Neural tube defects (NTD) pose huge financial burdens to our nation's healthcare system, with nearly 3,000 pregnancies each year resulting in NTD. Additionally, NTD contribute to negative health outcomes, such as infant mortality and severe childhood disability. Across the United States, it has been shown that NTD outcomes vary by ethnicity and race. However, little is known about racial and ethnic disparities in care and outcomes for NTDs in South Carolina.

Methods: All South Carolina pregnancies completed between January 1, 2010 and December 31, 2014 that received ICD 9 codes for NTDs (anencephaly, spina bifida, encephalocele, and/or holoprosencephaly) in an inpatient setting before the age of two and confirmed by medical records abstractors as definite, true cases were included in this analysis (n = 189). This active surveillance data was analyzed to determine whether disparities existed in the diagnosis of NTD. Additionally, data were assessed to determine whether infants with NTD were diagnosed prenatally, delivered in an appropriate regional facility, and whether a death occurred.

Results: Between 2010 and 2014, 447 pregnancies were affected by NTD in South Carolina. Similar proportions of Latino/Hispanic and non-Hispanic white pregnancies affected by an NTD were diagnosed prenatally (169/250 vs. 32/50, p = .62) and were delivered in regional perinatal facilities (186/250 vs. 33/50, p = .22). Among pregnancies affected by NTD, Latino/Hispanics and non-Hispanic blacks were significantly more likely than non-Hispanic whites to have had a death during the first two years of life and significantly less likely to have had an induced termination. Of pregnancies affected by NTD, 24% of Latino/Hispanic pregnancies and 18% of non-Hispanic black pregnancies resulted in a recorded death, compared to 9% of non-Hispanic white pregnancies. Thirty-two percent of white pregnancies affected by NTD resulted in an induced termination, compared to 10% of Latino/Hispanic pregnancies and 11% of non-Hispanic black pregnancies.

Discussion: Our analyses indicate that significant ethnic disparities in outcomes of pregnancies affected by NTD exist that disproportionately affect Latino/Hispanic and non-Hispanic black women. However, a few limitations exist. First, a number of births to South Carolina residents that occur in North Carolina and Georgia are not registered in the South Carolina Birth Defects Surveillance Program; unless a repeat admission occurs in an inpatient South Carolina hospital setting. Second, the analysis most likely did not include many deaths. Deaths were recorded when found in hospital medical records but linkage to death certificates was not performed. This resulted in the exclusion of any deaths that did not occur in an inpatient South Carolina hospital setting and identified via codes requested by the birth defects program. Additionally, the program missed deaths that took place after the age of two. Another limitation is that only those induced terminations performed in inpatient settings within the state of South Carolina and those spontaneous abortions which occurred at 20 or more weeks of gestation are recorded in our data.

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Category: **Clinical Science**

SOCIAL CAPITAL AND WOMEN'S COMORBIDITIES: A LONGITUDINAL STUDY OF GENDER DIFFERENCES IN SOCIAL CAPITAL AND THE RISK OF COMORBIDITIES

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Abstract

Background: Research suggests that social capital has differential effects on the health of men and women. No longitudinal studies have examined gender differences in the relationship between social capital and comorbid conditions. Social capital includes dimensions of network capital and trust, but debate exists about whether trust is a product of or proxy for social capital. This study aimed to examine gender differences in the relationship between social capital and the risk of comorbidities over time, and whether network capital and trust might differ in their relationship with comorbidities.

Methods: The Montreal Neighborhood Networks and Healthy Aging Study (MoNNET-HA) is a population-based panel study on neighborhood environments, social capital, and health with a sample of 2707 adults 25 years and older at three time points. Random-effects Poisson regression was used to examine the relationship among network capital (measured by a position generator), trust, and comorbidities. Analyses were stratified by gender and adjusted for depressive status, sociodemographic, and economic variables.

Results: In women, greater network capital was associated with higher risk of comorbidities over time (OR=1.983, P=0.029), while trust was associated with a lower risk (OR=0.878, P=0.044). Ancillary analyses showed that the association between network capital and comorbidities was due to knowing a physician. No significant associations among network capital, trust, and comorbidities were found in men.

Conclusions: This longitudinal study supports prior research on the importance of social relationships in women's health and provides evidence for the benefits of social capital on health. The positive relationship between network capital and comorbidities benefits overall health since it indicates the importance of this social tie for accessing health care resources. Future research should consider the multiple dimensions of social capital and the moderating effect of gender.

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Category: **Social Science**

Work was presented previously at the Society for Epidemiologic Research Annual Meeting (June 2017, Seattle, WA)

SERUM 25-HYDROXYVITAMIN D CONCENTRATIONS ≥ 40 NG/ML ARE ASSOCIATED WITH $>65\%$ LOWER CANCER RISK: POOLED ANALYSIS OF RANDOMIZED TRIAL AND PROSPECTIVE COHORT STUDY

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Abstract

Background: Higher serum 25-hydroxyvitamin D [25(OH)D] concentrations have been associated with a lower risk of multiple cancer types across a range of 25(OH)D concentrations.

Objectives: To investigate whether the previously reported inverse association between 25(OH)D and cancer risk could be replicated, and if a 25(OH)D response region could be identified among women aged 55 years and older across a broad range of 25(OH)D concentrations.

Methods: Data from two cohorts representing different median 25(OH)D concentrations were pooled to afford a broader range of 25(OH)D concentrations than either cohort alone: the Lappe cohort (N = 1,169), a randomized clinical trial cohort (median 25(OH)D = 30 ng/ml) and the GrassrootsHealth cohort (N = 1,135), a prospective cohort (median 25(OH)D = 48 ng/ml). Cancer incidence over a multi-year period (median: 3.9 years) was compared according to 25(OH)D concentration. Kaplan-Meier plots were developed and the association between 25(OH)D and cancer risk was examined with multivariate Cox regression using multiple 25 (OH)D measurements and spline functions. The study included all invasive cancers excluding skin cancer.

Results: Age-adjusted cancer incidence across the combined cohort (N = 2,304) was 840 cases per 100,000 person-years (1,020 per 100,000 person-years in the Lappe cohort and 722 per 100,000 person-years in the GrassrootsHealth cohort). Incidence was lower at higher concentrations of 25(OH)D. Women with 25(OH)D concentrations ≥ 40 ng/ml had a 67% lower risk of cancer than women with concentrations < 20 ng/ml (HR = 0.33, 95% CI = 0.12– 0.90).

Conclusions: 25(OH)D concentrations ≥ 40 ng/ml were associated with substantial reduction in risk of all invasive cancers combined.

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Category: **Clinical Science**

MATERNAL 25(OH)D CONCENTRATIONS \geq 40 NG/ML ASSOCIATED WITH 60% LOWER PRETERM BIRTH RISK AMONG GENERAL OBSTETRICAL PATIENTS AT AN URBAN MEDICAL CENTER

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Abstract

Background: Given the high rate of preterm birth (PTB) nationwide and data from RCTs demonstrating risk reduction with vitamin D supplementation, the Medical University of South Carolina (MUSC) implemented a new standard of care for pregnant women to receive vitamin D testing and supplementation.

Objectives: To determine if the reported inverse relationship between maternal 25(OH)D and PTB risk could be replicated at MUSC, an urban medical center treating a large, diverse population.

Methods: Medical record data were obtained for pregnant patients aged 18–45 years between September 2015 and December 2016. During this time, a protocol that included 25(OH)D testing at first prenatal visit with recommended follow-up testing was initiated. Free vitamin D supplements were offered and the treatment goal was \geq 40 ng/mL. PTB rates (<37 weeks) were calculated, and logistic regression and locally weighted regression (LOESS) were used to explore the association between 25(OH)D and PTB. Subgroup analyses were also conducted.

Results: Among women with a live, singleton birth and at least one 25(OH)D test during pregnancy (N = 1,064), the overall PTB rate was 13%. The LOESS curve showed gestational age rising with increasing 25(OH)D. Women with 25(OH)D \geq 40 ng/mL had a 62% lower risk of PTB compared to those <20 ng/mL ($p < 0.0001$). After adjusting for socioeconomic variables, this lower risk remained (OR = 0.41, $p = 0.002$). Similar decreases in PTB risk were observed for PTB subtypes (spontaneous: 58%, $p = 0.02$; indicated: 61%, $p = 0.006$), by race/ethnicity (white: 65%, $p = 0.03$; non-white: 68%, $p = 0.008$), and among women with a prior PTB (80%, $p = 0.02$). Among women with initial 25(OH)D <40 ng/mL, PTB rates were 60% lower for those with \geq 40 vs. <40 ng/mL on a follow-up test ($p = 0.006$); 38% for whites ($p = 0.33$) and 78% for non-whites ($p = 0.01$).

Conclusions: Maternal 25(OH)D concentrations \geq 40 ng/mL were associated with substantial reduction in PTB risk in a large, diverse population of women.

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ADENOSINE REGULATES CYTOKINE PRODUCTION FROM HUMAN MAST CELLS

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Abstract

Background and significance: Allergic disease is the 5th leading chronic disease, and women are more likely to suffer from allergies and asthma. Mast cells are the cell type that causes allergies, and are implicated in asthma pathogenesis. Allergic reactions are caused by pre-formed mediators like histamine that are contained within cytoplasmic granules of mast cells that are released immediately following the crosslinking of the high affinity receptor for IgE, FcεRI, with allergen. Adenosine is an endogenously produced purine nucleoside that is known to affect mast cell function, and induces bronchoconstriction in asthmatics, by acting through one or more adenosine receptors (A2aAR, A2bAR, and A3AR).

Objective: To investigate the role of adenosine on the production of pro-inflammatory cytokines from human skin mast cells that obtained almost from women who had done cosmetic surgery for breast and abdomen.

Results: We show that adenosine or NECA inhibited the production of pro-inflammatory tumor necrosis factor (TNF). We further show that forskolin, which induces cAMP, also inhibited TNF synthesis. Lastly, we demonstrate TNF production was inhibited with the A2aAR-specific agonist CGS21680, and that the A2aAR-specific antagonist ZM241385 prevented the inhibitory effect of adenosine.

Conclusion: Thus, these data identify Gs-coupled A2aAR as the adenosine receptor that inhibits FcεRI-induced TNF from human skin mast cells.

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ARE WOMEN'S PERCEPTION OF THEIR BMI CONSISTENT WITH THEIR ACTUAL BMI? PATIENT SURVEY OF ATTITUDES TOWARD HEALTH AND WEIGHT

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Abstract

Background and Significance: Obesity is a rapidly increasing problem that costs \$147 billion to \$210 billion per year in current health care costs and is predicted to increase to \$300 billion by 2018. It is an epidemic affecting our country, with two-thirds of adults now classified as overweight or obese. South Carolina now has the 10th highest adult obesity rate in the nation. South Carolina's adult obesity rate is currently 32.1% with the obesity rate of women specifically being 33.1%. There are many known health risks associated with obesity. These include but are not limited to hypertension, diabetes, coronary artery disease, arthritis, cancer, sleep apnea, stroke, and dyslipidemia. Providers in women's health also see an increased risk of menstrual irregularities, infertility, endometrial and breast cancer and an increase in surgical and perinatal risks. From the annual exam to contraception, menstrual irregularities to cancer and prenatal care to evaluation for surgery, obesity can influence every type of patient visit and chief complaint in the OB/GYN office. Therefore, it is critical for women's health care providers to have an understanding of how women perceive their weight in order to help educate and prevent the epidemic from worsening.

Methods: Exempt Institutional Review Board approval was obtained. An anonymous voluntary survey was completed by non-pregnant women presenting for women's health care at Palmetto Health Women's Center between November 1st, 2016 and July 15th, 2017. To compare women's actual weight with women's perception of weight, the CDC's definition of BMI was used with the following categories: Underweight: <18.5, Normal weight: 18.5-25, Overweight: 25-30, Obesity: 30-40, and Extreme Obesity: > 40. The data was then reviewed and processed as a descriptive analysis quantifying and qualifying the participants' responses. Statistical analysis was performed using the T-test, Mann-Whitney-U test, ANOVA, Chi-Square test, Fisher's exact test, Kappa and multivariable regression model.

Results: In total, 117 patients were included in the study. Due to missing values in some of the characteristics, the sample size varies for different variables. The mean BMI was 33.76 with a standard deviation of 10.37. The Kappa test showed that there is a strong disagreement between women's actual BMI category and their perception. Specifically, it was found that women underestimate their weight category.

Discussion: Women were found to underestimate their weight category and be unaware of the significant impacts to their overall health. Our data represents a single-center experience and is limited by race, socioeconomics, and education. However, these results are concerning and suggest further education for patients is warranted not only on how to lose weight, but also on an understanding of their current weight and the implications it has on their overall health and life.

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CHRONIC SOCIAL STRESS AND ACCELERATED AGING AMONG SOUTH CAROLINA WOMEN: INVESTIGATING THE SOCIAL, BEHAVIORAL, AND BIOLOGICAL INFLUENCES ON AGING

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Abstract

Background and Significance: Chronic social stress, e.g., discrimination and financial strain, have been identified as being at the nexus of the social, behavioral, and biological influences on health, linking social and environmental contexts to physiological and molecular mechanisms. Over time, the body can wear down from the chronic dysregulation of the hypothalamic-pituitary-adrenocortical (HPA) axis and sympathetic-adrenal-medullary (SAM) systems, with implications for cellular aging, including the reduced transcription of DNA into RNA and production of genetic protein products. The weathering hypothesis posits that groups under higher levels of chronic stress, e.g., racial and ethnic minorities or low income groups, may be at heightened risk for accelerated cellular aging, including reduced telomere length. Research has shown women to be at greater risk of accelerated aging than men.

Methods: Through ASPIRE II funding from USC, our research team will examine the weathering hypothesis among South Carolina women and address research questions at the nexus of the environmental and biological influences on women's health. Our research will address three main aims: (1) Create a panel of racially, socio-economically, and geographically (urban/rural) diverse women to examine the society-to-cell influences on aging among women in South Carolina; (2) Measure and compare telomere length (TL) and epigenetic regulation (EGR) as genetic indicators of accelerated aging in a random, population-based sample of South Carolina women; and (3) Estimate the association between chronic stress and TL/EGR in women, and whether the association between chronic stress and TL/EGR differs by race/ethnicity or socioeconomic status.

Discussion: Researchers have highlighted the need to consider key social demographic factors, such as age, gender, and place of residence, when examining the association between chronic stress and accelerated aging. Midlife represents a critical period for women's health. Midlife is a time when women's roles often change as children grow up and elderly parents tend to need more care. Middle-aged adults, particularly women, experience greater financial pressures and caregiving responsibilities than men or women in other age groups. Middle-aged women residing in the southeastern US may even be more exposed to chronic stress. High rates of poverty, lower levels of education, and less access to health care due to rural status characterize life in much of the southeastern US. South Carolina, for example, ranks 43rd nationally in women's median income, 42nd in the percentage of women above poverty, and 42nd in women's average life expectancy (79.8 yrs). Despite these major challenges, limited research has tackled the particularities of chronic stress and accelerated aging among women in the southeastern US.

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This work has not been presented previously.

Category: **Social Science**

PREPARING SOCIAL WORKERS FOR BEHAVIORAL HEALTH PRACTICE: IMPACTS FOR WOMEN AND WOMEN IN RURAL AREAS

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Abstract

Background and significance: South Carolina ranks 48th out of 50 for access to care for adolescents and adults in need of behavioral health services in primary care settings (America's Health Rankings, 2016). Once accessed, women in particular are less likely than men to complete behavioral health treatment (Agency for Healthcare Research and Quality [AHRQ], 2011). South Carolina is also a very rural state, with almost all of the state being categorized as extremely rural by the US Census Bureau. Because of the rural nature of the state, psychiatric hospitals, state and local mental health centers, K-12 public schools, college campuses, substance abuse centers, hospitals and local community health clinics all play an important role in the identification and ongoing treatment of South Carolinians with behavioral health problems, especially for women living in rural, vulnerable, and/or medically underserved SC communities. The Department of Health and Human Services is projecting that by 2025 there will be a shortage of 48,540 mental health and substance abuse social workers in this country (Health Resources and Services Administration [HRSA], 2016). It is vital to have effective training for social workers to improve the health disparities that exist for women, especially for those living in rural areas. The College of Social Work has implemented two specific training programs to directly improve competency of social workers working with these specific populations - the Training for Transitions (TFT) program and the Rural Interprofessional Behavioral Health Scholars (RIBHS) program. This poster will share how these programs are preparing the social work workforce to address these issues and will share evaluation data from the completed three year TFT program. **Methods:** The TFT and RIBHS programs include curriculum and onsite experiential training to improve MSW student's competence in providing effective behavioral healthcare services. Both programs are evaluated using a mixed method design which includes pretest-posttest surveys and focus groups. The measures included in the surveys contained the Interprofessional Education Attitudes (IPE), Team skills (TS), and Behavioral Health Competencies (BHC) scales. **Results:** Results of the TFT program found that after completing the TFT training, attitudes towards interprofessional health care teams, students' team skills, and behavioral health competencies all significantly increased across all three cohorts. It is expected that results from the RIBHS program will also show significant increase in the same areas, but also with improvements in attitudes towards rural practice. **Discussion:** In South Carolina, there is a dire need to train social workers in behavioral health, especially in rural and underserved areas, to help address this mental health professional shortage. Addressing this shortage is the first step in improving women's access to behavioral health care and addressing the disparities in care and outcomes for women. Having a knowledgeable workforce that understands these needs and disparities is the foundation for more targeted interventions to help strengthen behavioral healthcare for women.

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Category: **Social Science**

RETROSPECTIVE ANALYSIS OF IV FLOW CAPACITY IN OBSTETRIC PATIENTS AT RISK FOR POSTPARTUM HEMORRHAGE

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Abstract

Background and Significance: Postpartum hemorrhage (PPH) is one of the leading causes of preventable pregnancy-related mortality in developed and developing nations and complicates between 1-3% of pregnancies in the first 24 hours after birth. However, unlike other causes of hemorrhage, the risk of PPH can be estimated prior to its occurrence. This allows clinicians to take the necessary precautions to manage high-risk patients, which includes establishing two, 18-gauge (large-bore) intravenous (IV) catheters. This is an imperative first step in the management of hemorrhaging patients and can help avoid a suboptimal resuscitation and its subsequent complications. This retrospective study aims to assess how often obstetrical patients at high-risk for PPH received appropriate IV access, defined as two 18-gauge or larger IVs.

Methods: Exempt Institutional Review Board approval was obtained. A retrospective analysis was performed to examine the number and gauge of IV access placed in obstetrical patients upon admission to Labor and Delivery or Antepartum Service at our institution from September 1, 2015 through February 29, 2016. Only patients managed by the teaching service were included. A patient's risk for PPH was determined on admission, and patients were stratified into low, medium and high-risk groups based on the risk stratification put forth by the California Maternal Quality Care Collaborative (CMQCC). The number and size of IV catheters inserted upon admission were reviewed. Statistical analysis was performed using the T-test, Chi-Square test, Fisher's exact test and logistic regression model.

Results: In total, 922 patients were included in the study. 10% (93) were deemed high-risk for PPH. Of those patients, 93.5% (87) received a single IV catheter on admission, of which 75% were 20-gauge or smaller IVs. Only 1% (1) of the high-risk patients received appropriate IV access (two 18-gauge or larger IVs).

Discussion: Only 1% of patients at high-risk for PPH received appropriate IV access. Our data represents a single-center experience and should be confirmed. However, these results are concerning and suggest PPH patients may experience under-resuscitation and/or a delay in resuscitation due to inadequate IV access. Based on this data, the authors plan to revise the current Postpartum Hemorrhage Protocol and implement a new policy to ensure appropriate IV access is obtained in patients at high-risk for PPH.

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Category: **Clinical Science**

NEONATAL ESTROGEN EXPOSURE ELICITS LEFT-RIGHT ASYMMETRIC MAMMARY EPITHELIAL CELL COMPOSITION AND MORPHOGENESIS

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Abstract

Background and Significance: Exposure to non-physiological estrogen or estrogen mimetics during neonatal development increases breast cancer risk later in life, indicating that estrogenic substances elicit long-lasting effects in mammary glands. Yet, how such early exposure causes increased cancer incidence many years later is not well defined.

Methods: To address this, we used a mouse model in which neonatal female mice were administered 17- β -estradiol (E2). Following neonatal E2 treatment, thoracic and inguinal mammary glands were analyzed during early puberty.

Results: In E2-exposed mice, growth and elongation of ductal networks were reduced compared to networks present in control (vehicle) treated mice. To determine if the reduced growth was due to altered mammary epithelial cell differentiation, we analyzed expression of genes that mark mammary epithelial cell subtypes. We also quantified mammary epithelial cell subtypes by flow cytometry. We found that in glands of E2-exposed mice, the luminal cell population was decreased, whilst the basal cell population, including mammary stem cells, was increased. Notably, all of these changes occurred left-right asymmetrically in thoracic glands. By contrast, inguinal glands developed asymmetry only within the stem cell compartment.

Discussion: Together, these findings link estrogen-induced changes in mammary cell lineages, primarily the stem cell component, with heightened breast cancer risk. Furthermore, these results indicate that mammary glands have left-right differential response to non-physiological estrogen exposure, a heretofore unappreciated effect that may be relevant to endocrine-based therapies that are currently used in breast cancer prevention and treatment.

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Category: **Basic Science**

Note: Work previously presented at 2017 Gordon Conference on Mammary Gland Biology

PLANNED CESAREAN SECTION AND POSTPARTUM RECOVERY AND QUALITY OF LIFE

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Abstract

Introduction:

An abdominal binder is a large elastic band with Velcro closure that is placed around the abdomen and hips of a patient to provide additional abdominal support. Presently, utilization of a binder postoperatively is within the standard of care but is not required to be part of the post-operative management. Despite the prevalence of cesarean sections, the role of abdominal binders in this population has not been studied. Their impact in post-hernia repair populations has been studied with some statistical benefit identified, although this is not uniform, and often times, study patients reported subjective improvement without demonstration of statistical significance. The goal of this pilot study is to examine potential benefits of abdominal binders in postoperative cesarean patients as well as to evaluate any associations in patient medical and physical demographics with abdominal binder use and postpartum recovery. These initial statistics will be used to identify future study size and duration.

Methods:

Between January 2017 and September 2017, 23 patients at Palmetto Health were enrolled for prospective analysis after meeting inclusion and exclusion criteria. Participants self-selected to utilize an abdominal binder if desired preoperatively and on a daily basis postoperatively. Preoperatively and postoperatively, the quality of life, pain scores, and impressions regarding abdominal binders and prior surgical experiences of these patients were assessed with surveys including an EQ-5D-5L quality of life (QOL) survey, initial numeric rating scale (NRS), and a number of multiple choice questions. Chart review was also performed to stratify patient demographics and medical/physical characteristics as well as infant birth weight. This data was then analyzed to estimate the strength of the association between patient demographics, utilization of abdominal binder, and patient reported quality of life and NRS scores relative to abdominal binder use.

Results:

In our study, participants universally desired to utilize an abdominal binder. Preoperatively, 65.6% of participants felt that an abdominal binder would improve their postoperative experience. Of patients who received a binder postoperatively, 85.7%, 84.6%, and 78.6% of patients felt that it was improving their experience on postoperative days 1, 2, and 3 respectively. Postoperative pain scores were approximately the same on postoperative day 1 for those with and without a binder. However, both supine and standing average NRS pain scores were lower in those patients wearing an abdominal binder on postoperative days 2 and 3, although these results were not statistically significant. At 1 week postoperative, 52.9% of patients who had worn an abdominal binder reported that it had improved their experience.

Discussion:

In our study, the majority of patients who utilized an abdominal binder subjectively felt that it was beneficial to their postoperative experience, and the majority of those who did not utilize a binder believed that a binder would have helped. Additionally, there was a trend towards decreased average pain scores in patients who utilize an abdominal binder. Our results suggest that there may be a difference in postoperative pain, although a larger study would be needed to further evaluate for this difference.

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