



November 4, 2016

University of South Carolina Alumni Center
900 Senate Street
Columbia, SC

Established and coordinated by the
Department of Obstetrics and Gynecology
University of South Carolina School of Medicine

FOREWORD

Welcome! This year we are celebrating the 10th 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 morning session will focus on the history and future of women's health research. We are pleased to have as our keynote speaker Frances E. Ashe-Goins, RN, MPH, FAAN. She is an alumna of the University of South Carolina and was awarded an Honorary Doctorate in Philosophy by the University of South Carolina. She is the former Deputy Director of the Office on Women's Health, U.S. Health and Human Services, Washington, DC, and now serves as Clinic Relations Manager of Choose Well in Columbia, SC.

Dr. Francis G. Spinale, Associate Dean of Research and Graduate Education and Professor of Cell Biology and Anatomy, USC School of Medicine, will provide an update about research initiatives at the School of Medicine.

The poster session will feature research abstracts related to many aspects of women's health submitted by researchers and health professionals in multiple disciplines. A light lunch will be served. The afternoon session will feature selected oral presentations by Palmetto Health / USC School of Medicine OB/GYN resident physicians and by 2016 Carolina Women's Health Research Forum poster award winners.

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.

Judith T. Burgis, M.D.

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Professor and Chair
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USC School of Medicine

Stanette L. Brown, R.N.

Forum Coordinator
Department of Obstetrics and Gynecology
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Special Acknowledgements

We extend a special thank you to our sponsors.



*Women's and Neonatal Services,
Palmetto Health Richland Hospital*

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	<i>Ballroom</i> <i>Presidential Dining Room</i>
9:00 a.m.	Welcome and Opening Remarks Judith T. Burgis, MD Forum Chair Professor and Chair, Obstetrics and Gynecology USC School of Medicine Patricia Moore Pastides, MPH First Lady of the University of South Carolina	<i>Presidential Dining Room</i>
9:30 – 10:30 a.m.	Keynote Presentation <i>Women's Health Research: Our History and Our Future Challenges</i> Frances E. Ashe-Goins, RN, MPH, FAAN Client Relations Manager, Choose Well, Columbia, SC Former Deputy Director, Office on Women's Health, U.S. Health and Human Services, Washington, D.C.	<i>Presidential Dining Room</i>
10:30 – 10:45 a.m.	Break	
10:45 – 11:30 a.m.	Poster Session – Part 1	<i>Ballroom</i>
11:30 – 11:50 a.m.	Presentation <i>Research Initiatives at USC School of Medicine</i> Francis G. Spinale, MD, PhD, FACC, FAHA Associate Dean for Research and Graduate Education Professor, Cell Biology and Anatomy USC School of Medicine	<i>Presidential Dining Room</i>
11:50 – 12:00 p.m.	Oral Research Presentation <i>Prescriber Preferences for IUDs and Implants in South Carolina</i> Danielle Johnson, DO OBGYN Resident, PGY3, Palmetto Health / USC School of Medicine	
12:00 – 12:45 p.m.	Poster Session – Part 2	<i>Ballroom</i>
12:45 – 1:30 p.m.	Networking Lunch	<i>Ballroom</i>

- 1:30 – 2:30 p.m. Selected Oral Research Presentations *Presidential Dining Room*
- Review of Aspirin for Preeclampsia Prophylaxis*
 Monica Ploetzke, MD
 OBGYN Resident, PGY3, Palmetto Health / USC School of Medicine
- Is “Baby-Friendly” Actually “Mommy-Friendly?” Exploring Effects of the Baby-Friendly Initiative on Postpartum Patient Satisfaction*
 Jessica Ebinger, MD
 OBGYN Resident, PGY3, Palmetto Health / USC School of Medicine
- Triage Trends: Examining Patterns amongst Patient Education, Demographics, and Usage of Obstetric Triage Services*
 Carrye L. Daum, MD
 OBGYN Resident, PGY4, Palmetto Health / USC School of Medicine
- Barriers to Exercise in Pregnancy*
 Natalie Buckham, MD
 OBGYN Resident, PGY3, Palmetto Health / USC School of Medicine
- 2:30 – 3:00 p.m. Oral Research Presentations *Presidential Dining Room*
 2016 Forum Poster Award Winners
- Best Student
Financial Stress and Smoking Disparities among Sexual and Gender Minority (SGM) Women
 Allyson Beetham
 Undergraduate student
 University of South Carolina
- Best Basic Science
Heart Rate Recovery Following a Maximal Graded Exercise Test in Normal-Weight and Obese Women
 Elizabeth A. Easley, PhD
 Assistant Professor
 Department of Exercise Science, University of South Carolina- Lancaster
- Best Clinical Science
Interpregnancy Weight Change and Adverse Maternal Outcomes
 Chelsea Lynes, MSPH
 Division of Surveillance
 Office of Public Health Statistics and Information Services, SC DHEC
- Best Social Science
Trauma-Related Cognitions, PTSD and Vocational Readiness of Incarcerated Women
 Joi D. Anderson, PhD, LMSW
 Research Associate-Project Coordinator
 College of Social Work, University of South Carolina
- 3:00 p.m. Summary and Closing Remarks *Presidential Dining Room*
 Judith T. Burgis, M.D.

Conference Abstracts

(Listed Alphabetically by First Author)

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Al-Sammarraie NT, Menon V, Runyan RB, Potts J, and Azhar M. SYNERGISTIC GENETIC INTERACTION BETWEEN Tgfb1 And Tgfb2 UNDERLIES THE EPITHELIAL-MESENCHYMAL TRANSITION OF MOUSE EMBRYONIC HEART

Anderson JD. TRAUMA-RELATED COGNITIONS, PTSD AND VOCATIONAL READINESS OF INCARCERATED WOMEN

Armstead C, Farr DE, Pandya K, Felder T, Rosado S, Bishop K, Jeter M, Waterhouse S, White C, Davis L, Drayton R, Prince G. GETTING TO THE ROOT OF THE ISSUE: AFRICAN AMERICAN WOMEN'S HAIR MANAGEMENT APPRAISALS AND PHYSICAL ACTIVITY ENGAGEMENT

Armstead C, Farr DE, Pandya K, Hébert JR, Burch J, and Kim SW. BEYOND POVERTY: RACIAL AND GENDER FINANCIAL DISCRIMINATION PREDICT OBESITY RISK FACTORS AMONG AFRICAN AMERICAN FEMALE HOMEOWNERS

Armstead C, Pandya K, Wirth M, Farr DE, Murphy EA, Bishop K, Sydney, Waterhouse S, Jeter M, Davis L, Hébert JR. EXPOSURE TO RACIAL DISCRIMINATION PREDICTS C-REACTIVE PROTEIN AND A1C PERCENTAGE LEVELS AMONG AFRICAN-AMERICAN WOMEN

Beavin CL and Billings DL. ASSESSING ABORTION POLICY STAGNATION AND METHODS TO ENACT POLICY CHANGE IN LIMA, PERU

Beetham A, Pandya K, Sumpter K, and Armstead C. FINANCIAL STRESS AND SMOKING DISPARITIES AMONG SEXUAL AND GENDER MINORITY (SGM) WOMEN

Buckham N, Wilcox S, Liu J, Dahl A, Wende A, Sims K. BARRIERS TO EXERCISE IN PREGNANCY

Butts PB. EFFECTIVENESS OF WOMEN'S HEALTH PHYSICAL THERAPY ON CHRONIC PELVIC PAIN AND DYSURIA: A CASE REPORT

Carson MS, Enos RT, Velázquez KT, and Murphy EA. ESTROGEN IS PROTECTIVE AGAINST THE DEVELOPMENT OF OBESITY, ADIPOSE TISSUE INFLAMMATION, AND INSULIN RESISTANCE

Cervino JM, Faulkner AN, Farmaki E, Kaza V, Kiaris H, and Chatzistamou I. STUDIES ON THE TRANSCRIPTIONAL REGULATION OF THE TUMOR-PROMOTING CHEMOKINE CCL8

Chopra S, Lai Y, Wang J, Johnson J, and Azhar M. LIGAND-SPECIFIC FUNCTION OF TRANSFORMING GROWTH FACTOR BETA LIGANDS IN EPICARDIUM DURING HEART DEVELOPMENT

Covington-Kolb S, Chen L, and Picklesimer A. SOUTH CAROLINA CENTERINGPREGNANCY EXPANSION PROJECT: IMPROVING RACIAL DISPARITIES IN BIRTH OUTCOMES FOR A LOW-INCOME POPULATION

Covington-Kolb S, Crockett A, Heberlein E, Glasscock L, Shea K, Khan I. INVESTING IN CENTERINGPREGNANCY™ GROUP PRENATAL CARE REDUCES NEWBORN HOSPITALIZATION COSTS

Daum CL, Cai B, Brooks C. TRIAGE TRENDS: EXAMINING PATTERNS AMONGST PATIENT EDUCATION, DEMOGRAPHICS, AND USAGE OF OBSTETRIC TRIAGE SERVICES

Davis-Taylor M. BIOPOLITICS AND AFRICAN AMERICAN WOMEN'S BODIES: THE OBESITY EPIDEMIC, PATHOLOGIZATION, AND MEDIATING FACTORS

Easley EA, Black WS, Bailey AL, Lennie T, Clasey JL. HEART RATE RECOVERY FOLLOWING A MAXIMAL GRADED EXERCISE TEST IN NORMAL-WEIGHT AND OBESE WOMEN

Ebinger J. ABDOMINAL PAIN IN PREGNANCY: A CONVOLUTED CASE OF INTUSSUSCEPTION

Ebinger J, Castleberry L, and Cai B. IS "BABY-FRIENDLY" ACTUALLY "MOMMY-FRIENDLY?" EXPLORING EFFECTS OF THE BABY-FRIENDLY INITIATIVE ON POSTPARTUM PATIENT SATISFACTION

Farmaki E, Chatzistamou I, Kaza V, Cervino J, Faulkner A, and Kiaris H. CCL8 AND BREAST CANCER METASTASIS

Freeman EE, Bailey SB, Easley EA, Sellhorst SH, and Riner WF. EFFECT OF PHYSICAL ACTIVITY ON BODY FAT PERCENTAGE IN COLLEGE-AGE WOMEN

Giese M. A NATIONAL MODEL FOR IMPROVING MATERNAL AND CHILD OUTCOMES

Heiney S, Felder T, Pearman H, Quinn J, Phelps K, Adams S. PATIENT CENTERED ADHERENCE TO ENDOCRINE THERAPY

Holt SD, Chu C, Durkin MW, Nottingham JM, Doepker MP,. TRIPLE NEGATIVE BREAST CANCER: A SINGLE INSTUTION REVIEW COMPARING RACE AND SURVIVAL

Hudson J, Mayob R, Dickes L, Chenb L, Sherrilla W, Summey J,, Dalton B, Dankovich K. EARLY TREATMENT FOR NEONATAL ABSTINENCE SYNDROME: A PALLIATIVE APPROACH

Jain H, Billings D, Bhatia R, Law S. RESEARCHING AND ADDRESSING THE CONTEXTS SHAPING WOMEN'S CARE-SEEKING DECISIONS DURING LABOR AND DELIVERY IN RURAL INDIA

Johnson DB, Billings D, Brown S, Cai B and Sims K. PRESCRIBER PREFERENCES FOR IUDS AND IMPLANTS IN SOUTH CAROLINA

Johnson D, Brown SL, Cai B, Sims K and Billings DL. PRESCRIBER PREFERENCES FOR LONG ACTING REVERSIBLE CONTRACEPTION

Johnson D and Campbell B. CASE STUDY: VELAMENTOUS CORD INSERTION INTO THE DIVIDING MEMBRANE OF DICHORIONIC DIAMNIOTIC TWINS

Kennington J, Stroner K, Crosby S, Rosa A, Blanco C, Reynolds J, Holland K, and Neal AM. DO COUPLES AGREE ON WHY PARTNER AGGRESSION OCCURS? AN INVESTIGATION IN SITUATION-SPECIFIC ATTRIBUTIONS

Kilgore CM. MENOPAUSE, RURALITY & OBESITY IN RURAL AFRICAN AMERICAN WOMEN

Looper J and Castleberry L. AN UNLIKELY DIAGNOSIS IN A POST-OPERATIVE PATIENT

Luchok K and Davis M. CREATING A RESOURCE GUIDE TO ENSURE THE RIGHT TO WOMEN'S REPRODUCTIVE HEALTH

Lynes C and Boghossian N. INTERPREGNANCY WEIGHT CHANGE AND ADVERSE MATERNAL OUTCOMES

Lynes C and Davis H. CORONARY HEART DISEASE IN SOUTH CAROLINA WOMEN: DOES FISH CONSUMPTION MATTER?

Lynes C, Simpson K, Featherstone P, Smith M, and Davis HT. STRESS AND ORAL HEALTH CARE UTILIZATION: A 2013 PRAMS ANALYSIS

McDermott M, Hennes C, Roninson IB, and Broude EV. OVERCOMING RESISTANCE TO TARGETED THERAPY IN BREAST CANCER THROUGH INHIBITION OF CDK8

Nitcheva DK and Smith MG. MATERNAL MORTALITY IN SOUTH CAROLINA, 2011-2015

Nkwonta CA and Estrada RD. INTERNATIONAL UNIVERSITY STUDENTS' KNOWLEDGE, ATTITUDE AND UPTAKE OF HUMAN PAPILLOMA VIRUS AND CERVICAL CANCER PREVENTION

Orekoya O, Liu J, Boghossian N, Rothenberg S, Hazlett L, Cai B. EXCLUSIVE BREASTFEEDING AND DIAGNOSIS OF ALLERGIC CONDITIONS AND ASTHMA AMONG 6-YEAR-OLD US CHILDREN

Orekoya O, Liu J, Rothenberg S, Boghossian N, Hazlett L, Cai B. MATERNAL GESTATIONAL WEIGHT GAIN AND OFFSPRING'S WEIGHT AT 1 YEAR OF AGE IN RURAL GUANGXI PROVINCE, CHINA: THE MEDIATING ROLE OF BIRTH WEIGHT

Page HE, Pandya K, Farr DE, Zaragoza E, Vincelli S, Sung Kim S, Armstead C. MODELING THE ROLE OF STRESS IN MAJOR DEPRESSION AMONG AFRICAN AMERICAN MIDLIFE WOMEN

Pandya KD and Armstead CA. EXPLORING THE RELATIONSHIP BETWEEN CHURCH LEVEL PREDICTORS OF STATUS AND OBESITY RISK IN AFRICAN AMERICAN WOMEN OF FAITH

Pandya K., Eddy-Page H, Wirth MD, Hébert JR, Cheryl A. Armstead CA. DEPRESSIVE SYMPTOMS, STRESS, AND SERUM INFLAMMATION LEVELS, AMONG AFRICAN AMERICANS IN A RANDOMIZED COMMUNITY LIFESTYLE TRIAL

Ploetzke M, Huang M, Zeleke A, Brown S, Sims K. REVIEW OF ASPIRIN FOR PREECLAMPSIA PROPHYLAXIS

Reszczynski OG, Fix DK, Hetzler KL, Carson JA. THE ROLE OF OVARIAN FUNCTION AND INTERLEUKIN 6 IN THE REGULATION OF SKELETAL MUSCLE OXIDATIVE METABOLISM IN TUMOR BEARING MICE

Rosa A, Blanco C, Crosby S, Kennington J, Stroner K, Reynolds J, Neal A, and Holland AK. PERSONALITY CHARACTERISTICS AND WOMEN'S HEALTH: EVIDENCE THAT HIGH LEVELS OF TRAIT HOSTILITY AND ANXIETY REDUCE OVERALL QUALITY OF LIFE

Schneider LR, Lynes CL, Simpson KW. PHYSICAL ACTIVITY IN SOUTH CAROLINIAN MOTHERS AND ITS ASSOCIATION WITH GESTATIONAL WEIGHT GAIN

Schofield RJ, Freeman EE, Bailey SB, Sellhorst SH, Easley EA, and Riner WF. IMPACT OF BIOLOGICAL ATTRACTIVENESS ON BMI AND BODY FAT PERCENTAGE

Schramm AT, Swan S, Woodbrown VD, Warren PR. REPRODUCTIVE COERCION AS A PREDICTOR OF INTIMATE PARTNER VIOLENCE AMONGST HETEROSEXUAL AND SEXUAL MINORITY UNIVERSITY STUDENTS

Wooten NR, Adams RS, Mohr BA, Jeffery DD, Funk W, Williams TV, Larson MJ.
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DEPLOYED ARMY WOMEN

Yan C, Gomez B, Gifford JH, Cole CA, and LaVoie HA. C/EBP β TARGETING TO
PUTATIVE AMINO ACID RESPONSE ELEMENTS IN GENES REGULATING OVARIAN
FUNCTION

Zimmerman MS. FINDING ANSWERS FOR LIFE: ASSESSING THE INFORMATION
NEEDS OF UNDERSERVED AMERICAN WOMEN WITH A FOCUS ON REPRODUCTIVE
HEALTH

ABSTRACTS

PREVALENCE OF ALZHEIMER'S DISEASE AND RELATED DISORDERS BY SEX AND AGE IN SOUTH CAROLINA COUNTIES

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Abstract

Background and Significance: Alzheimer's disease and related disorders (ADRD) disproportionately affects women. In fact, almost two-third of Alzheimer's disease cases are women (1). As the older age population is anticipated to increase in size (2), it is essential to understand the spatial pattern of ADRD. This study aims to describe the geographical distribution of the prevalence of county-level ADRD by sex and age in 2013 in South Carolina.

Methods: We obtained data for 2013 from the South Carolina Alzheimer's Disease Registry, a comprehensive statewide registry of diagnosed cases of ADRD compiled from inpatient hospitalizations, mental health records, Medicaid, emergency departments, memory clinics, chart abstracts, vital records, and long-term care evaluations. We mapped prevalence of ADRD by sex (females and males) and age (50-74 years and ≥ 75 years) among the forty-six counties in South Carolina using Arc GIS Version 10.2.2.

Results: We found descriptive clustering by county level of ADRD in the upstate, Pee Dee, and coastal region. ADRD appears more common in older females and younger males.

Conclusion: Overall, there appears to be some evidence of geographic disparities in ADRD among counties in South Carolina across sex and age. Future research should include spatial analysis of ADRD sociodemographic predictors.

References:

Alzheimer's Association. 2016 Alzheimer's disease facts and figures. *Alzheimer's & Dementia* 2016; 459-509.

Erickson KI, Weinstein AM, and Lopez OL. Physical activity, brain plasticity, and Alzheimer's disease. *Arch Med Res* 2012; 43(8): 615-621.

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Category: **Social Science**

SYNERGISTIC GENETIC INTERACTION BETWEEN *Tgfb1* And *Tgfb2* UNDERLIES THE EPITHELIAL-MESENCHYMAL TRANSITION OF MOUSE EMBRYONIC HEART

Nadia T. Al-Sammarraie, Vinal Menon, Raymond B. Runyan, Jay Potts, and Mohamad Azhar

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Abstract

Background and Significance: Defect in valve formation is a potential cause of congenital heart disease. Cardiac cushions, precursors of valves and septa, are formed by epithelial-mesenchymal transition (EMT). *Tgfb1* and *Tgfb2* are expressed in both unique and overlapping fashion in outflow tract and atrioventricular canal during EMT and in EMT-derived endocardial cushions. *Tgfb1* null mice have normal heart but they die at weaning age due to autoimmune disease. *Tgfb2* null embryos have dysregulated EMT resulting in abnormal cushions. *Tgfb2* null mice die at perinatal stage due to multiple cardiovascular malformations.

Method and Results: Histological and morphometric analyses indicated a complete loss of *Tgfb1* resulted in attenuated in vivo cushion formation in *Tgfb2* null embryos. Immunohistochemical analysis indicated no significant effect on cardiac cushion proliferation and apoptosis but overall extra-cardiac apoptosis was increased in the double mutants. Analysis of cushion formation in ex vivo collagen gel assays revealed that the cushion EMT was abolished in the *Tgfb1/Tgfb2* double null embryos compared to single nulls and control embryos.

Conclusion: These results indicate a novel synergistic role of TGFβ1 and TGFβ2 in epithelial-mesenchymal transition and cushion remodeling in the mouse heart. TGFβ2 mutations and/or dysregulated TGFβ1 has been reported in Loeys-Dietz syndrome afflicted with adult congenital heart defects and valve malformations. Thus, elucidation of the role of TGFβ1 in TGFβ2-dependent cushion EMT will improve our basic understanding of the etiology of valve malformations.

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Category: **Basic Science**

*Presented at "Weinstein Cardiovascular Development and Regeneration Conference" on May 19, 2016
Durham, NC*

TRAUMA-RELATED COGNITIONS, PTSD AND VOCATIONAL READINESS OF INCARCERATED WOMEN

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Abstract

Background and Significance: The role of trauma in the lives of incarcerated women has been the focus of many studies. The most commonly reported factors were childhood sexual and physical abuse and adult physical abuse. Recent statistics suggested that upward of 60 percent of incarcerated women were exposed to trauma prior to incarceration with 99 percent having reported at least one traumatic event during their life time. In fact, the number of incarcerated women who experience interpersonal violence (childhood sexual and physical abuse and abuse by an intimate partner) supersedes the number of women in the general population exposed to these forms of trauma. According to recent cognitive models of trauma response, maladaptive appraisals of traumatic events determine how an individual will adapt to her environment. Previous research has indicated that incarcerated women with chronic and/or multiple trauma experiences have higher levels of trauma-related cognitions and higher levels of PTSD. PTSD impairs psychological functioning contributing to difficulty in managing pre-employment screenings, interviews and the daily expectations and responsibilities of work-related activities as suggested in previous research. The prevalence of trauma resulting in trauma-related cognitions and PTSD symptoms in the lives of incarcerated women calls attention to the importance of these statistics and reinforces the significance of vocational readiness—the ability to attain and maintain employment—for female inmates preparing to reenter the workforce

Methods: This study examined the effects of trauma-related cognitions and PTSD on the vocational readiness of incarcerated women in three correctional facilities in the Northeast region of the US in 2013. The sample included 250 female inmates; 152 White, 50 African American, 18 Bi-racial, 13 Native American/Pacific Islanders and 12 Latina females. A cross-sectional research design was employed to examine the relationship between trauma exposure prior to incarceration and during incarceration on the development of trauma-related cognitions and the vocational readiness of incarcerated women. A stratified random sampling procedure was utilized. The strata used in the study was housing security level 1-4. Data was collected using survey instruments measuring exposure to traumatic events (Pre-prison trauma and Incarceration-based trauma), trauma-related cognitions, PTSD severity and vocational readiness. An instrument was developed to measure Incarceration Based Trauma (IBT).

Results: Multiple linear regression results indicated that higher levels of negative trauma-related cognitions about self were the strongest predictors of lower vocational readiness in the area of freedom from barriers ($\beta = .25, p < .05$); motivation ($\beta = .31, p < .01$) and blame ($\beta = -3.71, p < .001$). There was a statistically significant difference in the mean scores for the groups severe PTSD ($M = 12.52, SD = 3.16, N = 111$); $t(245) = 9.76$, in comparison to Mild PTSD ($M = 8.66, SD = 3.03, N = 134$) $p = .001, d = 1.25$.

Discussion: In this study, negative trauma-related cognitions associated with “self” contributed to a lower potential for vocational readiness in all areas. Higher trauma-related cognitions for Black and Latina females were strong predictors of lower potential for vocational readiness, in the area of motivation, in comparison to White female inmates.

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Category: **Social Science**

Poster presented at APA [American Psychological Association] Annual Conference (2015).

GETTING TO THE ROOT OF THE ISSUE: AFRICAN AMERICAN WOMEN'S HAIR MANAGEMENT APPRAISALS AND PHYSICAL ACTIVITY ENGAGEMENT

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ABSTRACT

Background and Significance: Alarming rates of obesity among African-American women (AAW) places them at disproportionately high risk of cancer, diabetes, and cardiovascular disease. Studies suggest that AAW are also less physically active than other groups. The benefits of increased physical activity (PA) are of public health importance. Little is known about the psychological and cultural determinants of PA among AAW. Our focus groups suggest that hair management concerns are a limiting factor for exercise.

Methods: Study 1 was a pilot survey comparing hair maintenance barriers to PA among AAW and European American (EAW) undergraduate students. In study 2, we used a mixed methodology design to explore hair maintenance factors influencing PA in the broader community. The community sample consisted of 50 AAW recruited from AA churches, university AA faculty and staff listservs, and AA social organizations.

Results: In study 1, we found that 1.4% EAW compared to 20% AAW, reported limiting their PA due to hair style concerns. In study 2, focus group responses from our community sample were analyzed using constant comparative analysis. Themes were: 1) Hair maintenance as a socio-cultural determinant female attractiveness, 2) intentional activity limitation was viewed as a strategy to extend the life of the hair style, 3) African American hair as a stressor, and 4) Perceived lack of control over hair texture changes were barriers to PA. The imbalance between PA causing perspiration and hair maintenance was seen as a barrier to intense physical activity. Braids, weaves, and natural hair styles were seen as facilitating factors for PA. Sedentary women prioritized hair maintenance over exercise.

Conclusions: Our study's findings are meant to serve as a heuristic model for cultural tailoring of positive messages regarding the physical activity initiation and maintenance. Evidence-based PA messaging incorporating cultural nuances of hair maintenance is a promising modality for outreach and information dissemination to AAW.

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Category: **Social Science**

BEYOND POVERTY: RACIAL AND GENDER FINANCIAL DISCRIMINATION PREDICT OBESITY RISK FACTORS AMONG AFRICAN AMERICAN FEMALE HOMEOWNERS

*Cheryl Armstead, Ph.D.^{1,2}, Deonna E. Farr, MPH, DrPH (c)^{2,4}, Kinjal Pandya, MA¹, James R. Hébert, Sc.D.^{2,3}, James Burch, Ph.D.^{2,3}, and Sung W. Kim¹

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Background and Significance: The obesity epidemic among African Americans (AAs) has been addressed from numerous biopsychosocial perspectives including investigation of the role of socioeconomic inequities in obesity risk. Evidence suggests that the often reported inverse relationship between obesity and the 'wealth-health gradient is far from universal regarding African Americans, in general and African American women (AAW), specifically. Notably, higher socioeconomic status AAW in South Carolina exhibit extreme obesity disparities compared to White women. While inactivity, poor dietary practices, and socioeconomic disparities are implicated in obesity risk among AAW, financial stress burdens, stress caused by financial discrimination, and maladaptive coping processes remain largely unexplored. By framing the present study with Pearlin's Stress Process Model, this investigation is an initial step toward understanding the determinants of obesity risk associated with financial stress exposure among AAW who are well above the poverty line.

Methods: Ninety-six African American female homeowners participated in an internet based survey, "The Home Ownership & Health Study". Four obesity risk variables were assessed in the survey: BMI, monthly fast-food consumption, weekly exercise, and sleep problems. Predictors of the obesity risk process were as follows: measures of perceived life stress and financial stress coping, depressive symptomology and anxiety, ethnic and gender exposure to financial discrimination, individual income, and wealth (home equity in years).

Results: The mean age of the sample was 44.85(±8.04) years. Their reported life stress levels were similar to previously reported AA perceived stress scores ($M=14.8$, $SD=6.6$). Our depressive symptoms scores were slightly above the PHQ-9 norms for AAs ($M=6.6$, $SD=5.1$). The participants were obese ($M= 32.57$ kg/m², $SD=9.38$ kg/m²). After adjusting for age and marital status, linear regression modeling indicated that 35.6% ($R^2_{Adjusted} = .356$, $p<.001$) of the variance in BMI kg/m² was predicted by more depression symptoms, lower self-reported perceived stress, greater racism at work, lower gender discrimination at work, lower racial discrimination for unsecured credit and home loans during the past year. Twenty-seven percent of the variance in six-month weight gain was predicted by fewer years of home equity (wealth), lower income, greater racism and gender discrimination regarding unsecured credit ($R^2_{Adjusted} = 0.27$, $p<.001$). Life stress and debt stress were not significant predictors of six-month weight gain. Twenty percent of the variance in AAW's quantity of weekly exercise was accounted for both racial and gender discrimination at work and racism in home loan financing predicted ($R^2_{Adjusted} = 0.196$, $p<.0001$). Debt stress was not a predictor of exercise. Notably, depression symptoms, perceived stress, amount of debt stress, and frequency of overall debt worry predicted 76.5% of the variance in sleep problems ($R^2_{Adjusted} = 0.765$, $p<.0001$). Debt stress was a strong predictor of sleep problems among AAW, but no other obesity risk factors. Wealth and income did not significantly contribute to the prediction of the four obesity risk factors examined.

Discussion: The present study builds on other inquiries by considering the multiple dimensions of economic strains in health morbidity among AAW. Weight-related risk factors among this cohort of AA female homeowners were universally characterized as having monthly exposure to financial stressors in the form of gender and racial financial discrimination. Our findings as applied to the Stress Process Model, suggests that culturally-tailored health promotion targeting management of financial stress and elimination of discriminatory stress processes are essential to decreasing obesity risk among AAW in the middle and upper ranges of the socioeconomic gradient.

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EXPOSURE TO RACIAL DISCRIMINATION PREDICTS C- REACTIVE PROTEIN AND A1C PERCENTAGE LEVELS AMONG AFRICAN-AMERICAN WOMEN

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Background and Significance. Self-reported experiences of exposure to racial discrimination stress have been linked to behavioral risk factors for cardiovascular disease, diabetes, and cancer among Black women. We know very little about the influence of discrimination stress on biological mechanisms underlying chronic disease risk among midlife African-American women. High-sensitivity C- reactive protein (hs-CRP), interleukin- 6 (IL-6), and high-sensitivity hemoglobin A1c percentage (hs-A1c) are biological markers of inflammation, and are known correlates of cardiovascular disease, breast and cervical cancers, and diabetes risk among women. To our knowledge, no study has examined the association between experiences of discrimination stress exposure and inflammatory biomarkers among *African-American women*.

Methods. The data for the current analyses were derived from a lifestyle intervention study conducted between 2010 and 2014. The trial aimed to reduce chronic systemic inflammation. After approval by the Institutional Review Board of the University of South Carolina, questionnaires assessing demographics; health, and racial discrimination stress, were mailed to the participants a week before their clinic date. Exposure to racial, weight, and socioeconomic status discrimination were measured using a modified version of the year-seven CARDIA Discrimination Scale. Participants were scheduled for in-clinic appointments at baseline, after the 12-week intervention, and at the end of one year. During clinic visits, completed questionnaires received, anthropometric measurements were taken, and a fasting blood sample was drawn. All blood pressure and anthropometric measurements, including height, hip and waist circumferences, total body weight, and fat mass, obtained via bioelectrical impedance assessment were taken by trained study staff. Body mass index (BMI) was calculated from measured height and weight [BMI = weight(kg) / height(m)²]. Inflammatory biomarkers (hs-CRP and IL-6) were assayed from blood samples taken at each clinic visit. Hs-A1c levels were measured using whole blood.

Results. We modeled the effect of self-reported experiences of discrimination on 1) hs-CRP, 2) IL-6, and 3) hs-A1c in a sample of 699 African-American adult women with a mean age of 56.3 years. Overall, the sample was college educated (80%), and those with a college education were less likely to be married compared to high school graduates (54% vs. 87%, $p < 0.01$). On average, the sample was obese (BMI = $32.6 \pm 6.9 \text{ kg/m}^2$) and had high levels of inflammation (CRP = $3.9 \text{ mg/L} \pm 4.1$; IL-6 = 2.3 ± 1.8). Discrimination was dichotomized as exposure or lack of exposure to racial stress during the participant's lifetime. Covariates were BMI, age, educational attainment, weight and socioeconomic discrimination exposure. Final generalized linear models indicated that both log-transformed hs-CRP ($B = -.224$, $p = .017$) and hs-A1c ($B = -.050$, $p = .001$) were predicted by exposure to racial stress, while IL-6 was not predicted by exposure to racial stress. Logistic regression analyses indicated that having been diagnosed with an inflammatory condition was predicted by the absence of lifetime racial stress exposure ($B = -.224$, $p = .015$).

Discussion. In conclusion, inflammatory markers related to cancer, cardiovascular disease, and diabetes risk among college-educated women are predicted by self-reported experiences of racial discrimination stress after controlling for covariates thought to influence racial discrimination and/or biological markers. These findings highlight the impact of racial stress on biomarkers of cancer, diabetes, and cardiovascular disease risk among African-American women in South Carolina. The modifying effect of discrimination on pro-inflammatory markers has important policy and public health significance regarding African American women's exposure to racial stress and pervasive disparities in their health and well-being

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ASSESSING ABORTION POLICY STAGNATION AND METHODS TO ENACT POLICY CHANGE IN LIMA, PERU

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Deborah L. Billings, PhD, Choose Well, Columbia, South Carolina

Abstract

Background: Abortion policy in Peru has remained virtually unchanged for over 90 years, and there are an estimated 370,000 unsafe abortions per year in the country. Abortion is only legal in Peru to preserve the health of the mother, therefore most abortions go unreported and no official statistics exist. Peru's unsafe abortion rate surpasses the average rate for Latin America and it is the third leading cause of maternal death from direct causes.

Methods: Participants were originally recruited through a point person in Lima, Peru. Subsequent participants were recruited by recommendation of other participants and through independent networking of the primary investigator. A 30-60 minute interview was conducted with ten professionals of different backgrounds to determine leading factors in abortion policy stagnation and the methods believed to be most important in changing abortion policy.

Results: Participants gave many similar responses to causes for abortion policy remaining unchanged, with religious influence in government, lack of official statistics and accessible information, and a traditionalist congressional majority being the most prominent factors. Few worked with organizations or individuals outside of Peru, and even fewer worked with United States organizations.

Discussion: Safe abortion is not just a desired option in Peru, it is an absolute necessity. Further analysis should be used to determine cohesiveness of strategies and suggestions to improve cohesion across and within movements as well as assess need from outside entities such as organizations from the United States. Similar movements, like the LGBTQ rights movement, can also prove to be important allies since they have similar goals.

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Category: **Social Science**

FINANCIAL STRESS AND SMOKING DISPARITIES AMONG SEXUAL AND GENDER MINORITY (SGM) WOMEN

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Background and Significance. Centers for Disease Control and Prevention identifies sexual and gender minority (SGM) populations as a priority population with significant tobacco-related disparity. Smoking rates for female SGM ethnic subpopulations are significantly higher than straight women. Similarly, the SGM community has statistically significantly higher levels of stress and lower socioeconomic indicators. Social ecology theory suggests that financial stress would have a strong influence on smoking as a way of maladaptive coping. Intersectionality theory would suggest that among women, SGM status and ethnicity would produce synergistic effects on current smoking status. This *student initiated project* stimulated the development of our SGM Women's Smoking Disparities Research Model. The purpose of this study is to characterize stress levels by SGM subgroups, smoking status, ethnicities, socioeconomic statuses, and age groups.

Methods. The target population of BRFSS are non-institutional adults, eighteen years of age and older, living in households with landline telephones. All sample households used have a known, non-zero chance of selection. From 2010-2015, fifty-one states/territories used a disproportionate stratified sample (DSS) design. Guam, Puerto Rico, and the U.S. Virgin Islands used a simple random sample design. With DSS design, telephone numbers are divided into two groups, which are the high-density stratum and the medium-density stratum. The high-density stratum was expected to contain a larger proportion of residential telephone numbers than the medium-density stratum. Telephone numbers are then sampled separately from the two strata with high-density numbers being sampled at a higher rate. We examined the responses of 489,675 women who participated in the 2015-2011 Behavioral Risk Factor Surveillance Survey using the following measures: *Current Smoking Status:* Adult's current smoking status was categorized. *Sexual Orientation.* Sexual orientation was determined by the following question: "Which of the following best describes you?" A total of females self-identified as gay, lesbian, transgender, or bisexual, representing 30.7% of the overall sample. 30% of the sample was composed of ethnic groups other than Whites and 70% were White (not Hispanic). *Intersectionality Between Gender and Race.* Intersectionality is the idea that gender and race do not independently influence outcomes. So therefore we computed an interaction term which is represented as the multiplicative function of gender and race. *Stress Due to Financial Stress.* The BRFSS does not contain a composite measure of stress, therefore we grouped two financial stress indicators and computed a stress summary score. This measure includes the sum of: 1) Times Past 12 Months Worried/Stressed About Having Enough Money to Pay *Your Rent/Mortgage?* and 2) Times Past 12 Months Worried/Stressed About Having Enough Money to *Buy Nutritious Meals?*

Results. SGM smoking rates were almost twice as high compared to the straight female sample. We found that the percentage of current smokers varied by SGM subgroup from 36% to 49%. Mean perceived stress scores were higher among transgender SGM non-white subgroups for current smokers compared to Whites and other SGM groups. This study examines diversity among women at the intersection of ethnicity and sexual identity. Importantly, transgender identified women demonstrated some of the highest rates of both financial stress, coping by smoking, and lower socioeconomic status.

Discussion. These results support a mainstream body of research in which smoking is viewed as a maladaptive response to stress. This study builds on the body of current research by examining financial stress and the synergistic intersection between continuum of sexual orientations between SGM and straight women, while acknowledging the contribution of ethnicity to women's social ecology.

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BARRIERS TO EXERCISE IN PREGNANCY

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Background and Significance: Greater than half of all women of reproductive age are overweight or obese, and the risks associated with pregnancy are significant. Women who exercise during pregnancy experience many benefits, including healthier weight gain, thereby decreasing their risk of gestational diabetes, preeclampsia, cesarean section and operative vaginal delivery. Although more research is needed, studies have shown benefits for exercise in pregnancy and there is no evidence of harm (when not contraindicated). If we can continue to validate exercise during pregnancy, healthy lifestyles may extend beyond pregnancy and perhaps help reduce the burden of obesity on women considering pregnancy. **Methods:** Adult patients > 12 weeks gestation were invited to complete a voluntary anonymous survey regarding barriers to exercise in pregnancy (n=254). Patients with multi-fetal gestation and disability that prevented exercise were excluded. **Qualitative Analysis:** Nine questions were open ended, and were imported into the QSR NVIVO 11 software. All responses were coded to capture major themes of data. These themes were then examined for differences by race and gestation. **Quantitative Analysis:** SAS software 9.2 was used. Chi-squared and Fisher's exact tests were run for multiple variables regarding exercise and pre-pregnancy health. Then these variables were tested for association with demographic variables including number of live births, number of previous pregnancies, trimester, number of previous miscarriages, age, marital status, health insurance, education, employment status, pre-pregnancy exercise, race, BMI and pre-pregnancy BMI. **Results: Qualitative Results:** Few respondents (19%) conveyed an accurate understanding of guidelines for exercise in pregnancy, although a majority (53%) agreed exercise was beneficial. Walking was the most common exercise response (72%), when asked in context of safety. Weight training (39%) and running (35%) were perceived as not safe. Most common benefits to exercise in pregnancy were perceived as benefits during labor (38%) and weight maintenance (21%). The most commonly cited risks were preterm labor (18%), injury/accident (15%) and miscarriage (13%). Most commonly cited barriers to exercise were energy level (37%) and physical barriers associated with pregnancy (17%). 21% reported their healthcare provider did not talk to them about exercise, but 22% agreed their healthcare provider stated exercise was beneficial. 9% reported receiving specifics regarding exercise. Patients reported that increased energy levels (15%), more time (14%) and motivation (10%) would help them exercise more. **Quantitative Results:** The study showed that 91% of people agreed regular exercise can help weight maintenance in pregnancy, with 89 % of patients agreeing too much weight gain is unhealthy for the mother during pregnancy. A statistically significant association was noted in patients in the second trimester (p=.0197), with increased number of miscarriages (p=.0428), for those who were married (p=.0126), those who have a higher level of education (p=.0244), a greater BMI (.0021) and pre-pregnancy BMI (.0005) and in the White, Asian and the Alaskan Native population (p=.0022). The latter also had a positive relationship with private health insurance (.0289). A total of 84 % of respondents agreed that gaining too much weight may be unhealthy for their baby; a statistically significant positive association was noted in patients who were married (p=.0077), had private insurance (p=.0081), a higher level of education (p= <.0001), those who were employed (p=.0369), those who had a greater BMI and pre pregnancy BMI (p=.0180 and p=.0016), those with higher levels of pre-pregnancy exercise per week (p=.0041), and in the White and Asian population (p=.0016). **Discussion:** The results indicate that there are many educational gaps regarding exercise in pregnancy and pregnancy health. The results obtained in this study can help practitioners tailor their counseling techniques to fill these gaps. With this data we may be able to improve pregnancy outcomes and also decrease risk of poor outcomes related to obesity.

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Oral Presentation : **Clinical Science**

EFFECTIVENESS OF WOMEN'S HEALTH PHYSICAL THERAPY ON CHRONIC PELVIC PAIN AND DYSURIA: A CASE REPORT

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Abstract

Background and Significance: Recognition that many urogynecologic symptoms are stemming from the manifestation of a short, tense pelvic floor, has allowed for the role of physical therapists to expand into Women's Health. Some of the most common urogynecologic diagnoses seen with short pelvic floor muscles (PFMs) are chronic pelvic pain, dysuria, dyspareunia, interstitial cystitis, and difficulty with defecation. Literature suggests physical therapy should be included as part of a patient's continuum of care when chronic pelvic pain is perceived. Often times, treatment of abdominal and vaginal trigger points that are contributing to pelvic pain and muscle dysfunction are part of the plan of care. If treatment of these problem areas are left out, the patient will fail to make progress in their recovery. Physical therapy techniques proven to improve symptoms of chronic pelvic pain and dysuria are as follows: pelvic floor drops, manual work of tissues of the abdomen/thighs/scars, and vaginal trigger point release of pelvic floor muscles. This is a case report following the suggested treatments for chronic pelvic pain and dysuria, based on the available literature.

Methods: Patient was a 40 year old female who was evaluated and treated for chronic pelvic pain and dysuria. VAS was completed pre and post plan of care. Typical treatment sessions consisted of connective tissue massage to abdominal muscles, MET to B iliopsoas, skin rolling to B adductors, S/CS, via vaginal canal, to all PFMs, sEMG training for TrA and PFM co-activation training, toilet positioning, bladder health, and dietary and exercise education and programming.

Results: Patient reported 75% improvement after the first two therapy sessions. Pt was seen for a total of 5 physical therapy visits. VAS pain score was significantly reduced from 8/10 at initial evaluation to 3/10 at discharge. The 5-point difference exceeds the 3-point change needed to achieve the Minimally Clinically Important Difference in the VAS outcome measure. At discharge, patient reported no pelvic pain after internal examination, urination 5x/day, and the ability to contract abdominal musculature.

Discussion: Trigger points are often palpable taut bands within a muscle that can be a contributing factor in causing pain. The levator ani muscle group can develop trigger points, just like any other muscle in the body, therefore; impairing muscle tissue function. These taut bands are a common reason for development of a shortened pelvic floor, causing muscular weakness and difficulty with relaxation. Urinary and defecatory dysfunction is a common symptom present in those patients who demonstrate a difficulty in pelvic floor relaxation. Vaginal trigger points are a primary target for physical therapy intervention for chronic pelvic pain and dysuria. This case report demonstrates the plausibility and importance of incorporating pelvic floor physical therapy into a patient's urogynecologic plan of care.

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Category: **Clinical Science**

ESTROGEN IS PROTECTIVE AGAINST THE DEVELOPMENT OF OBESITY, ADIPOSE TISSUE INFLAMMATION, AND INSULIN RESISTANCE

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Background and Significance: Postmenopausal women suffer from a disproportionate burden of co-morbidities associated with obesity. The underlying mechanism for this is not well understood but is believed to relate to the absence of estrogen. The purpose of this study was to examine the role that estrogen plays in the susceptibility to obesity and type II diabetes development.

Methods: Beginning at five weeks of age, female C57BL/6J mice (n=10/group) were assigned to one of four treatment groups for 17 weeks (5-21 weeks of age): a control diet (AIN-76A), a 40% high-fat diet (HFD), a HFD ovariectomized (OVX) group, or a HFD OVX group with estrogen replacement therapy (HFD OVX + E). Body weight and composition and glucose metabolism were examined throughout the study. Gonadal adipose tissue was examined (RT-PCR) for macrophage markers (F4/80, CD11c, CD206) and inflammatory mediators (MCP-1, Cxcl14, TNF- α , TLR2, IL-10).

Results: In general, it was found that estrogen is protective at mitigating the development of obesity, adipose tissue inflammation, and diabetes. Specifically, we found an increase in body fat composition, impaired glucose metabolism, and increased inflammation in ovariectomized mice (OVX) compared to intact female mice (HFD). However, estrogen replacement in OVX mice reversed these perturbations; we report a decrease in body fat, improved glucose metabolism and decreased inflammation.

Discussion: These data provide evidence that estrogen replacement therapy may be an effective therapeutic strategy for combating obesity development and associated co-morbidities during post-menopause.

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Category: **Basic Science**

STUDIES ON THE TRANSCRIPTIONAL REGULATION OF THE TUMOR-PROMOTING CHEMOKINE CCL8

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Background and significance

A typical tumor is made up of cancer cells and stroma which interact via soluble factors. CCL8, a chemoattractive chemokine that belongs to the Monocyte Chemoattractive Protein (MCP) chemokine cluster, mediates tumor-stroma interactions by promoting the dissemination of the cancer cells. In tumors, the stromal fibroblasts are in an activated form which induces cancer cell invasion, migration and metastasis. CCL8 in particular is stimulated in stromal fibroblasts by signals elicited by the breast cancer cells and stimulates invasion and metastasis. Thus, understanding how CCL8 expression is regulated in stromal fibroblasts is of high value. In this study, we developed a reporter plasmid for human and mouse CCL8 promoters in order to study the regulatory regions of the CCL8 gene that are responsible for its activation in the stroma.

Methods

We used promoter prediction software and potential promoter sequences (TATA boxes) were found and primers were designed. The promoters were then amplified by PCR and subsequently subcloned in pGL3-based luciferase reporter plasmids which were then used to transform bacterial cells. Finally, plasmid DNA from the bacteria was transfected into mouse 3T3 and human HFFF2 fibroblasts and luciferase activity was evaluated. For our initial studies we tested the responsiveness of the plasmid constructs we have generated to breast cancer cell-conditioned media and IL6 which are known to stimulate the expression of CCL8 at the RNA level.

Results and Conclusions

Side by side analysis of promoter activity between the mouse and human constructs indicated significant homology at the functional level which suggests that CCL8 regulation is conserved. Knowing the regulation of CCL8 is vital because from this information we could understand basic aspects of tumor stroma biology and potentially develop agents and therapies to block tumor growth and metastasis.

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Category: **Basic Science**

LIGAND-SPECIFIC FUNCTION OF TRANSFORMING GROWTH FACTOR BETA LIGANDS IN EPICARDIUM DURING HEART DEVELOPMENT

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ABSTRACT

Although TGF β ligands express in (pro)epicardium, the unique and/or overlapping role of individual TGF β ligands in epicardial dependent cardiac morphogenesis remains unknown. Here, we showed that loss of Tgfb2 caused disruption of cell-cell interactions between the epicardium and myocardium resulting in a thinned ventricular myocardium. Furthermore, epicardial explants lacking Tgfb2 exhibited reduced TGF β -induced epicardial epithelial-mesenchymal transition (EMT) in vitro on collagen gels. Immunohistochemistry analysis showed reduced expression of pSMAD2/3 in TGF β 2-deficient epicardium and epicardium-derived cells (EPDC), indicating TGF β 2 is required for the canonical TGF β signaling. Given the co-expression of TGF β ligands, Tgfb2;Tgfb3 double knockout embryos exhibited detached epicardium, a phenotype that was more severe than what was seen in Tgfb2 $^{-/-}$ fetuses. Although we noted increased epicardial EMT-derived cells in subepicardium, our histology data revealed that subepicardial and coronary vascular development was completely diminished in Tgfb2;Tgfb3 double knockout embryos. Finally, the data indicated that the simultaneous genetic loss of Tgfb2 and Tgfb3 resulted in hyperactivated noncanonical (pERK1/2-mediated) TGF β signaling in embryonic hearts during epicardial morphogenesis. In conclusion, our in vivo data suggest that paradoxically hyperactivated TGF β -induced ERK-MAPK (i.e., non-canonical/non-SMAD TGF β pathway) signaling is a reparative response to the disrupted TGF β 2-TGF β 3 signaling resulting in disrupted epicardial-myocardial interaction and coronary vascular development. Collectively, our results indicate that synergistic genetic interaction between Tgfb2 and Tgfb3 plays an important role in epicardium-dependent cardiac morphogenesis.

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**SOUTH CAROLINA CENTERING PREGNANCY EXPANSION PROJECT:
IMPROVING RACIAL DISPARITIES IN BIRTH OUTCOMES FOR A LOW-INCOME
POPULATION**

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BACKGROUND: To improve birth outcomes and reduce racial disparities, South Carolina
Department of Health and Human Services sponsored the expansion of Centering Pregnancy
group prenatal care (CPNC) in obstetric practices serving low-income women.

METHODS: This is a retrospective cohort study of women who received CPNC from seven sites
(implemented CPNC prior to 2014) and had a live birth between August, 2013 and September,
2014, compared with women from the same practices receiving standard individual prenatal care
(IPNC). Using state vital statistics and Medicaid claims databases, multivariate regressions were
conducted to examine differences in birth outcomes with adjustment for demographic and
clinical risk factors.

RESULTS: The crude preterm birth (PTB; < 37 weeks) rate was 10.98% in IPNC (N=6,803) and
8.28% in CPNC (N=604) (P=0.04). Greater difference was found in Black (12.70% vs. 4.92%; P
<0.001) than in White women (9.71% vs. 8.39%; P=0.48). Adjusted odds ratio (OR) for PTB for
women in CPNC was 0.67 (P=0.01): 0.35 (P<0.001) in Blacks and 0.71 (P=0.15) in Whites.
Unadjusted rates of adequacy of prenatal care and breastfeeding were higher for CPNC women
(P<0.001). There was no difference in low birth weight rate but the adjusted birth weight was
59g (P=0.02) greater in CPNC compared with IPNC: 70g greater (P=0.08) in Blacks and 50g
greater (P=0.16) Whites.

CONCLUSIONS: Interim results indicate statewide implementation of CPNC in practices
serving low-income women improves the rate of PTB and other birth outcomes as compared to
IPNC, with greater benefits found in Black women.

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Category: **Clinical Science**

Previous submission: APHA Annual Meeting: November

INVESTING IN CENTERINGPREGNANCY™ GROUP PRENATAL CARE REDUCES NEWBORN HOSPITALIZATION COSTS

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Background

CenteringPregnancy™ group prenatal care is an innovative model with promising evidence of reducing preterm birth. The additional costs incurred by outpatient providers in offering CenteringPregnancy pose barriers to adopting this model of care. Enhanced provider reimbursement for group prenatal care may improve birth outcomes and generate newborn hospitalization cost savings for insurers.

Methods

We evaluated the impact of a pilot incentive project between a Medicaid managed care organization and a large prenatal care clinic with an existing certified CenteringPregnancy program on NICU admission rates and costs. The Medicaid managed care organization (MCO) paid the obstetrics practice \$175 for each patient who participated in at least five group prenatal care sessions. Using one to many casecontrol matching, each CenteringPregnancy participant was retrospectively matched on propensity score, age, and clinical risk factors to 50 individual care participants. We estimated the odds of newborn hospital admission type (NICU or wellbaby admission) for matched CenteringPregnancy and individual care cohorts with four or more visits using multivariate logistic regression. Cost savings were calculated using mean costs per admission type at the delivery hospital.

Results

3.5% of CenteringPregnancy newborns had a NICU admission compared to 13.9% of individual care newborns ($p < 0.001$). Investing in CenteringPregnancy for 85 patients (\$14,875) saved the MCO an estimated \$86,015 in NICU costs. The main limitation is the small sample size of the pilot study.

Conclusions

CenteringPregnancy may reduce costs through fewer NICU admissions. Enhanced reimbursement from payers to obstetrics practices supporting CenteringPregnancy sustainability may improve birth outcomes and reduce associated NICU costs.

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Category: **Clinical Science**

Previous Submission: CityMatCH Conference, September 2016

TRIAGE TRENDS: EXAMINING PATTERNS AMONGST PATIENT EDUCATION, DEMOGRAPHICS, AND USAGE OF OBSTETRIC TRIAGE SERVICES

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Abstract

Background and significance: Overutilization of emergency departments, including specialized obstetrical triage units, is a common problem in the United States. Patients often present to emergency facilities for nonemergent conditions. Although many patients who present to emergency facilities also have a primary healthcare provider, that source of care is not always felt to be readily available or accessible to them. Reports have also suggested that primary providers may not be providing education to patients regarding which health issues represent true emergencies. Demographic disparities, including age and race, have also been discovered in the setting of reproductive health-related emergency department visits. This study aimed to identify additional factors that contribute to frequent obstetrical triage visits at Palmetto Health Richland in an attempt to ultimately decrease nonemergent use of triage facilities.

Methods: This study was conducted via a Palmetto Health IRB approved prospective anonymous patient survey, distributed to eligible Labor & Delivery triage patients at Palmetto Health Richland Hospital between September 2015 and May 2016. Patients provided basic demographic information, as well as information regarding prenatal care, chief complaint, number of previous triage visits, and education received prior to the triage visit.

Results: 201 survey responses were obtained. Due to missing values in some of the characteristics, the sample size varied for different variables. Of survey respondents who presented to triage, 67% reported having Medicaid/Medicare, 22% reported private insurance and 5% reported themselves self-pay. 76% were discharged home, while 24% were admitted to the hospital. 58% reported that they had not spoken with a healthcare provider on the telephone prior to arrival. 86% reported that they received prenatal education from doctors and nurses in clinic, while 41% reported receiving prenatal education from the internet. When asked if they had discussed or received education about their chief complaint from their healthcare provider prior to the triage visit, 50% reported yes and 50% reported no.

Significant associations were found between several variables (insurance coverage, age, and education level) and whether or not they had utilized the phone triage system prior to presentation to Labor & Delivery. Of respondents with private insurance, 69% had utilized the phone triage system prior to presentation, compared to only 38% of those with Medicaid/Medicare ($p \leq 0.0002$). Of those aged 30 or greater, 61% had utilized the phone triage system prior to presentation, compared to only 35% aged 16-29 ($p \leq 0.0226$). Of those with a college or graduate degree, 76% had utilized the phone triage system prior to presentation, compared to only 35% with a high school degree or less ($p \leq 0.0001$).

Discussion: The majority of patients who present to triage are ultimately discharged home. Increasing education to improve awareness of the phone triage system for patients with Medicaid, patients younger than age 30, and patients with a high school degree or less may decrease overall Labor & Delivery triage visits.

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Oral Presentation: **Clinical Science**

BIOPOLITICS AND AFRICAN AMERICAN WOMEN'S BODIES: THE OBESITY EPIDEMIC, PATHOLOGIZATION, AND MEDIATING FACTORS

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Abstract

Background and Significance

Prior research suggests that biomedicalization and biopolitics emerged during the Progressive Era, when political debate and action shifted from discourse that addressed race as a social issue. This shift linked theories of racial inferiority with the notion of sanitation, contagion, and germs. Historically, African American women were at the center of this discourse, being labeled as the “diseased Black woman.” According to the U.S. Department of Health and Human Services, 82% of non-Hispanic Black women age 20 and over are overweight or obese. Biopolitics, embedded in the U.S. government’s efforts to wage war on obesity, fail to acknowledge the contributing roles of government and business in escalating obesity rates, while exhorting individuals to be solely responsible for their own health outcomes. According to anthropological studies, the prevalence of fatness and obesity at any given time in a society is considered as a measure of its level of “cultural order.” Contemporary Western culture equates fatness and obesity with lack of individual discipline, thus, pathology. The specter of the so-called obesity epidemic has caused what some have described as a “moral panic” in the United States, and a re-emergence of the tome of the “diseased Black woman.”

Discussion

This research employs the feminist frameworks of feminist epidemiology and postcolonial feminist theory, to explore new and alternative methods for conducting research on the prevalence of obesity among African American women. The traditional epidemiological approach, which has pathology at its root, is compared to research strategies involving intersectionality and community based participatory research (CBPR). Historical trauma theory and posttraumatic slave syndrome provide a foundational framework from which to explore the social determinants of health that directly affect health outcomes. CBPR, employing postcolonial feminist theory, promotes research using the lens of race, class, gender, and power relations. This research is a platform with which to highlight the possible mediating factors, instead of pathology, that may influence obesity rates among African American women.

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HEART RATE RECOVERY FOLLOWING A MAXIMAL GRADED EXERCISE TEST IN NORMAL-WEIGHT AND OBESE WOMEN

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Background: In adults, cardiorespiratory health and fitness are often estimated in clinical settings using heart rate recovery (HRRec) measures following exercise. In diseased populations, attenuated HRRec has been associated with poor health outcomes, low fitness, and obesity.

Purpose: To determine if 1-min HRRec measures and cardiorespiratory fitness differ between normal-weight (NW) and obese (OB) women and to identify if a correlation between HRRec and VO₂ peak exists. **Methods:** NW (BMI 18.5-24.9 kg/m²) and OB (BMI ≥ 30 kg/m²) women (ages 25-45 yrs) were studied (exclusions: smokers, known cardiovascular disease and/or diabetes). Height, weight, body composition, and measures of resting heart rate (HR) and blood pressure (BP) were recorded. Each woman completed a maximal graded treadmill test (GXT; 2 min incremental stages) to volitional fatigue. Following the maximal GXT, maximal HR during exercise, VO₂ peak, 1-minute HRRec, and recovery BP responses were determined. Independent sample t-tests were used to determine if differences existed in 1-minute HRRec and VO₂ peak between the groups. Pearson's correlational analyses between HRRec and VO₂ peak were evaluated in the total group (n=27) and each group categorized by BMI (NW and OB).

Results: 15 NW and 12 OB women participated in this study. There were no significant differences (p=0.260) in HRRec in the NW (32.4 ± 13.6 bpm) versus OB (26.7 ± 11.8 bpm) groups despite significant differences in fitness (VO₂ peak; NW, 36.9 ± 5.9 ml/kg/min; OB, 24.7 ± 5.3 ml/kg/min; p < 0.001) and performance (time on treadmill; NW, 15.1 ± 1.5 mins; OB 11.1 ± 1.4 mins; p<0.001). In addition, there were no significant correlations between HRRec and VO₂ peak in the total group (r = 0.048, p = 0.811), in the NW group (r = -0.104, p = 0.711), or in the OB group (r = -0.333, p = 0.290).

Conclusions: While HRRec may be a convenient method of estimating health and fitness, it may be inappropriate to draw conclusions regarding cardiorespiratory performance based on HRRec alone in obese, clinically disease-free adult populations.

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This abstract was accepted and presented at the 2015 Annual American College of Sports Medicine in San Diego, CA

ABDOMINAL PAIN IN PREGNANCY: A CONVOLUTED CASE OF INTUSSUSCEPTION

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Abstract

Background

Abdominal pain in pregnancy is common. The differential is broad and covers a multitude of diagnoses. Intussusception in adults accounts for only 5% of all intussusception cases; in pregnancy, this is even rarer.

Case

26 year-old primigravida at 26 weeks gestation presented to outlying facility with complaints of nausea, vomiting, and abdominal pain. Obstetric and gastrointestinal workup with ultrasound was negative. General surgery declined to perform diagnostic laparoscopy; the patient was transferred.

Upon evaluation, the patient was in exquisite pain. Repeat ultrasound was suspicious for intussusception. CT scan confirmed intussusception causing small bowel obstruction. General surgery performed ileocolonic resection with primary anastomosis. The patient ultimately required primary cesarean section and end-ileostomy for suspected intraabdominal sepsis.

Discussion

This case illustrates the importance of exploring uncommon diagnoses in the setting of common complaints of pregnancy. Providers must consider further evaluation when physical exam and symptoms are not consistent with the results of prior studies.

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Category: **Clinical Science**

Accepted for poster presentation at the South Atlantic Association of Obstetricians and Gynecologists Annual Meeting, January 2017

IS “BABY-FRIENDLY” ACTUALLY “MOMMY-FRIENDLY?” EXPLORING EFFECTS OF THE BABY-FRIENDLY INITIATIVE ON POSTPARTUM PATIENT SATISFACTION

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Abstract

Background: The Baby-Friendly Hospital Initiative was launched by the World Health Organization in 1991 to encourage breastfeeding. Baby-Friendly USA has specific criteria for “Baby-Friendly” designation. No studies have been reported about patient satisfaction; few show increased breastfeeding rates.

Methods: Patients ≥ 16 years who were cared for and delivered by the resident service were provided anonymous surveys during postpartum visits during a 4-month study period.

Results: 145 of 170 surveys qualified for analysis. 28% underwent Cesarean delivery (CD); 72% vaginal delivery. 28% responded “neutral or disagree” when asked if they could rest and recover in the hospital. Compared to patients delivering vaginally, post-operative patients were more likely to respond negatively when asked if they felt they could safely care for their infant ($P < .05$). 97% reported being informed of infant safe sleeping guidelines; 84% practiced safe sleeping. 103 (72%) planned exclusive breastfeeding with 50% switching to some formula feeding at discharge. 40 patients planned to formula feed prior to delivery; 3 (7.5%) switched to exclusive breastfeeding. Of formula users, 35.7% felt inadequately informed about formula feeding; 26% felt shamed regarding their decision.

Conclusion: Baby-Friendly policies can impact patient wellbeing and potentially infant safety. Patients undergoing CD and those who formula feed may need additional support caring for newborns and education not addressed by Baby-Friendly. Though most patients planned to breastfeed, half switched to some formula feeding upon discharge. Many felt shamed regarding their decision or inadequately educated on formula feeding. This small study suggests additional research is needed.

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Oral Presentation: **Clinical Science**

CCL8 AND BREAST CANCER METASTASIS

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Abstract

Background and Significance: The migration of cancer cells towards gradients of chemoattractive factors represents a potential, yet elusive, mechanism that may contribute to cancer cell dissemination. Here we used breast cancer cells as a model and focused on a conserved chemokine cluster located on chromosomes 11C in mice and 17q12 in humans.

Methods: *In vitro* experiments were performed using breast cancer cells and fibroblasts for co-culture and transwell-based migration assays. For the *in vivo* tumorigenicity studies we used wt and Ccl8KO mice bearing EO771 tumors or nude mice bearing MDA-MB-231 tumors. For CCL8 antibody evaluation we used wtCcl8/SCID and Ccl8KO/SCID.

Results: Our findings are consistent with the establishment of a gradient of increasing CCL8 concentration between the epithelium, the stroma and the periphery that is instrumental for breast cancer cells' dissemination. In response to signals elicited by the neoplastic epithelium, CCL8 production is enhanced in stromal fibroblasts at the tumor margins and in tissues at which breast cancer cells tend to metastasize such as the lungs and the brain. Manipulation of CCL8 activity influences the histology of the tumors and promotes major steps of the metastatic process such as invasion to adjacent stroma, intravasation and ultimately extravasation and seeding. *In vitro* and *in vivo* studies identified tumor-derived IL6 as the stimulator of CCL8 in cultured fibroblasts and lungs of mice suggesting the operation of a prometastatic IL6-CCL8 loop between the epithelium and the stroma.

Discussion: Analysis of publicly available data suggested that CCL8 is overexpressed in breast tumors as compared to normal breast tissue while high CCL8 expression in clinical breast cancers is associated with poor prognosis. In view of these findings, we developed a neutralizing monoclonal antibody (1G3E5) for human CCL8 that inhibits the migration of CCL8 and other chemokines such as CCL7 and CCL11, and evaluated if anti-CCL8 therapy is promising for the management of breast cancer. Pilot studies in mice bearing human breast cancers showed that 1G3E5 inhibited the growth of breast cancer cells and suppressed their invasion towards adjacent human fibroblast-containing nodules and lung metastases. Our results suggest that anti-CCL8 therapy should be considered for breast cancer management.

This work was supported by a pilot grant 5P30GM103336-02 from NIH (to H.K.) and an ASPIRE I award no: 18060-16-41667 (to I.C.) from the Office of Research of the USC

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Category: **Basic Science**

A part of this work has been published in Oncogene Journal (May 2016; doi:10.1038/onc.2016.161)

EFFECT OF PHYSICAL ACTIVITY ON BODY FAT PERCENTAGE IN COLLEGE-AGE WOMEN

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Abstract

Background: Increased levels of physical activity have been associated with lower body fat percentage in women.

Purpose: The purpose of this study was to determine if females who meet or exceed ACSM/CDC recommendations for physical activity have a lower body fat percentage than those who do not meet recommendations.

Methods: Forty-four female full-time students aged 18-25 from a small, rural, commuter college campus participated in the study. Students were categorized into two groups based on ACSM/CDC recommendations for physical activity (greater than 150 minutes per week and less than 150 minutes per week). Percent body fat was obtained through a DXA scan (Lunar iDXA). Students completed the Physical Activity Stages survey to determine time spent physically active.

Results: An independent sample t-test was used to compare mean body fat percentages between groups. There was no significant difference in body fat percentage between groups (PA 150 minutes or more (n = 25), 32.51 ± 6.95 %, PA less than 150 minutes (n = 19), 34.51 ± 5.20 %, $p = 0.301$).

Conclusion: There was no significant difference in the body fat percentages between women who reported 150 minutes of physical activity per week and those who reported less than 150 minutes per week. Future studies should objectively measure the amount and intensity of physical activity. The actual values may produce different results than the values self-reported by participants themselves.

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Category: **Basic Science**

This material has been presented previously at the Southeast American College of Sports Medicine Meeting, in February 2016.

A NATIONAL MODEL FOR IMPROVING MATERNAL AND CHILD OUTCOMES

Melanie “BZ” Giese, BSN

South Carolina Birth Outcomes Initiative (SCBOI) is an effort led by the South Carolina Department of Health and Human Services (SCDHHS), who partners with over 100 stakeholders to improve the health outcomes for moms and babies, not only in the Medicaid program but throughout the state. Launched in July 2011, the following are SCBOI’s objectives:

- Elimination of non-medically necessary births between 37 – 38 weeks gestation; includes non-payment policy
- Establishing Baby-Friendly designated hospitals to promote breastfeeding
- Improving access to Long-Acting Reversible Contraceptives (LARCs) through immediate post-partum inpatient insertion
- Supporting the CenteringPregnancy model of care to reduce health disparities
- Reducing the number of first time, low risk births by Cesarean sections through the Supporting Vaginal Birth (SVB) initiative
- Providing SBIRT (Screening, Brief Intervention, Referral and Treatment) for all pregnant women for tobacco use, substance abuse, alcohol, depression and domestic violence
- Implementing a Level 1 nursery treatment protocol in 10 hospitals to address Neonatal Abstinence Syndrome (NAS)

SCBOI stakeholders, which include physicians, nurses, state agencies, non-profits, other healthcare professionals and private payers, have met for 62 consecutive months to work collaboratively to improve birth outcomes. SCBOI has been recognized as a national leader for its success in improving maternal and infant health.

The efforts of SCBOI has produced substantial results to include but are not limited to:

- Since the launch of the non-medically necessary early-elective deliveries initiative (NMN EED), the state has achieved a 70% reduction in EEDs overall
- 76% of all birthing hospitals in our state have achieved a rate of 0% for early elective deliveries between 37 and 38 weeks gestation
- 11 out of 44 South Carolina birthing hospitals are now designated as Baby-Friendly, meaning 36% of all births in the state and 34% of all Medicaid births occur in a Baby-Friendly hospital. The national average is 17%
- 11 SC hospitals are inserting LARCs immediately post-partum, with the three largest hospitals performing this procedure in 30% of new mothers before discharge
- As of June 2016, 15 physician practices in SC offer CenteringPregnancy (group prenatal care) which provides an additional reimbursement to providers through Medicaid as well as Blue Cross Blue Shield of SC
- Outcomes of the SVB initiative include a 2-3% reduction in C-section rates, Mobile Simulation on the SimCOACH with onsite training at hospitals for physicians and L&D nurses with over 1,000 personnel trained
- Established the first Mother’s Milk Bank of SC (MMBSC) which opened in April 2015; have received 70,000 oz. of milk from 160 donors and have 16 fully functional depots
- Address the benefits of Level 1 nursery versus NICU care for babies born with NAS by using a palliative treatment model
- Between 2011 and 2014, SC infant mortality rate dropped from 7.4 per 1,000 live births to 6.5 per 1000 live births, a 12% decrease over the 3 years. African American infant mortality rate was 12.6 in 2011 and as of 2014, has dropped to 9.3 per 1,000 live births, a 26% decrease over the 3 years.

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Category: **Social Science**

PATIENT CENTERED ADHERENCE TO ENDOCRINE THERAPY

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Background and Significance

African American (AA) women with breast cancer (BrCa) suffer a 40% higher mortality burden than white women despite having a much lower incidence. Endocrine Therapy (ET), the recommended adjunct treatment for hormone-receptor positive BrCa, can reduce recurrence by 40% and lower the risk of dying by one third.⁰ About two-thirds of all breast cancers are estrogen or progesterone receptor positive. For all women with hormone positive BrCa, the use of ET significantly improves survival rates. Despite these survival benefits, there is strong evidence that AA women prescribed ET have worse adherence than white women. Reeder-Hayes found that 17% of AA women with BrCa are less likely to adhere than white women. For this abstract, adherence is defined as maintenance of recommended therapy throughout a specified time period. Overall, 50 to 75% of all women **do not maintain** ET as prescribed. Therefore, given the high mortality in AA women with BrCa, the lack of intervention studies that focus on hormonal therapy to improve adherence and the methodological weaknesses in current studies, there is a critical need to understand the patient's perspective on treatment adherence, given the lengthy treatment period and negative side effects experienced and especially to determine patient report of successful treatment adherence strategies so that a patient centered intervention could be developed.

Methods:

We conducted two focus groups with AA women with BrCa who were prescribed ET. Thirteen women attended. Women were recruited from a previous study who agreed to be contacted for future study. These women were also invited to bring a friend who had breast cancer and was taking ET. The study was approved by the Palmetto Health IRB and USC IRB. The focus group was led by a doctorally prepared AA nurse with experience in working with breast cancer patients. We used a discussion guide to elicit information about the participants experience with taking hormonal treatment, their understanding of the rationale of the treatment, strategies they had used to help them adherence, and opinions about memory aids.

Results

Participants identified beliefs about ET, successful adherence strategies, and problems encountered. Women perceived that the prevention of recurrence outweighed the side effects they experienced. Successful strategies included use of reminder notes and routines, e.g. taking medicine at the same time every day. Several women used their smartphone calendar as a memory cue. Importantly, participants noted that social support from other women who were experiencing similar problems was more important to adherence than family support. The participants were not taught about side effects and wondered if these were normal.

Discussion

Women need to be better informed about the purpose of therapy, the side effects and strategies to promote adherence.

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Funding: ASPIRE USC Vice President Research

TRIPLE NEGATIVE BREAST CANCER: A SINGLE INSTITUTION REVIEW COMPARING RACE AND SURVIVAL

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Abstract

Background and Significance:

Triple negative breast cancer (TNBC) is an aggressive subtype of breast cancer with a higher prevalence in the African Americans. South Carolina demographically has a high percentage of African Americans. This study examines the ER/PR/HER-2 receptor subtypes comparing race and survival.

Methods:

A retrospective review of breast cancer patients within the Palmetto Health Cancer Registry was performed from the period between 1999-2015. Patient demographics and tumor characteristics were collected and correlated with outcomes. Overall survival (OS), disease-specific survival (DSS) and recurrence-free survival (RFS) were analyzed using the Kaplan-Meier method.

Results:

The total number of breast cancer patients in the registry was 1,741. Of these 1,085 were Caucasian women and 638 were African-American. The majority of cancers diagnosed in Caucasians and African-Americans were early stage (I, IIA, IIB and IIIA, respectively 97% vs. 95% p=NS). We identified 335 patients (19.2%) with TNBC. Of those 335 patients, 145 (13%) were Caucasian and 189 (29.6%) were African American. OS, DSS and RFS were significantly worse in African-American patients with TNBC (p=0.001).

Discussion:

TNBC disproportionately affects African-American women and is an aggressive subtype of breast cancer with limited treatment options compared to receptor positive breast cancer. The African-American patients with TNBC in our study had a worse OS, DSS and RFS. These findings are similar to what has been reported in the literature and prompts further research in newer targeted therapies and clinical trials.

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Category: **Clinical Science**

EARLY TREATMENT FOR NEONATAL ABSTINENCE SYNDROME: A PALLIATIVE APPROACH

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Presenting: Michelle Greco, RNC-MNN, CCE, BSN; Manager, Child Abuse Prevention Program, Bradshaw Institute of Community Child Health and Advocacy, Greenville Health System

Abstract

Objective

To improve health and utilization outcomes for newborns at risk for opioid withdrawal, the SC Department of Health and Human Services sponsored this study to describe medical, safety and healthcare utilization outcomes associated with an early treatment model for neonatal opioid withdrawal.

Study Design

This is a retrospective cohort study of 117 opioid-exposed infants born in a large regional hospital and treated in the Level I nursery with low-dose methadone within 24 hours of birth.

Results

For this cohort, mean length of stay was 8.3 days. Hospital safety events were infrequent; there were no medication errors or deaths. Within 30 days of discharge, 14% of infants visited the emergency department; 7% were readmitted. Per birth, mean hospital charges were \$10,946.96; mean costs were \$5,908.93.

Conclusion

This study is the first to describe an early treatment model in a low-acuity nursery to prevent severe neonatal opioid withdrawal. The described model may be safe, effective, low-cost, and feasible for replication.

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Category: **Clinical Science**

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RESEARCHING AND ADDRESSING THE CONTEXTS SHAPING WOMEN'S CARE-SEEKING DECISIONS DURING LABOR AND DELIVERY IN RURAL INDIA

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Background:

Located in northeast India, Orissa is the second poorest state with the highest infant and maternal mortality rates in the country. Since June 2013, USC students, through GlobeMed, and the non-governmental organization (NGO), Alternative Rural Movement (ARM), have been collaborating to determine the causes of these high mortality rates.

Methods:

Using a community-based participatory research model, ARM has trained women in the community to survey their peers to better understand the decisions women make in relation to prenatal care and where to deliver their babies. The survey was developed using the Three Delays Model (Thaddeus and Maine, 1994) and the Theory of Planned Behavior. From November 2015 to December 2015, 501 women of various castes and religions were identified through pre-existing self-help groups and were interviewed on their decisions to seek care, their identification of a medical facility, how they reached the facility, and whether they received adequate and appropriate treatment.

Results:

Of the 501 women interviewed about their most recent delivery, 330 women (66%) ages 16-34 (mean 24.7 years) gave birth at the local government hospital; while 125 women (25%) ages 18-43 (mean 25.4 years) gave birth at home. 15 women (3%) ages 20-32 (mean 26.1 years) gave birth at the private hospital, with an average age of 26.1 at the time of delivery. 26 women (5%) ages 19-35 gave birth at the sub-center with an average age of 24.8 years at the time of delivery. Finally, 5 women (1%) ages 19-23 gave birth at other places with an average age of 20.6 years at the time of delivery. There was no significant difference in age between women birthing at the government hospital and those birthing at home, while, as hypothesized, very few women gave birth at a private hospital, most likely due to the cost of care. Further analyses are underway to determine what factors were related to women seeking care at government hospitals versus birthing in their homes.

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Category: **Social Science**

PRESCRIBER PREFERENCES FOR IUDS AND IMPLANTS IN SOUTH CAROLINA

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Abstract

Objectives: Describe prescribing preferences for IUDs and implants (Long Acting Reversible Contraception [LARC]) in South Carolina (SC). Identify barriers that prevent providers from offering, prescribing, inserting and removing LARC.

Methods: We surveyed SC women's health professionals via OB/GYN, family medicine, nurse practitioner, and physician assistant listservs during August/September 2015. Fisher's exact test was used for analysis.

Results: Total sample size was 92 respondents. A significantly greater percentage of SC OB/GYN providers were certified in implant (74%) and IUD (90%) insertion and removal during training compared to family medicine providers (7% and 15%, $p < .0001$ and $p < .0009$ respectively). OB/GYN providers were more likely to identify nulliparous (96%), unmarried (96%) women with history of prior sexually transmitted infection (STI) (92%) or women not in monogamous relationships (90%) as appropriate implant candidates compared to family medicine providers (65%, $p < .0018$; 84%, $p < .0310$; 42%, $p < .0001$; 46%, $p < .0001$ respectively). OB/GYN providers were more likely to identify nulliparous (84%), unmarried (92%) women with history of prior STI (56%)/pelvic inflammatory disease (28%) as appropriate IUD candidates compared to family medicine providers (38%, $p = .0003$; 61%, $p = .0045$; 19%, $p = .0039$; 3%, $p = 0.039$). A majority of all providers cited cost as a major impediment to prescribing LARC, with 61% reporting up front costs and 59% reporting limited insurance coverage as barriers.

Conclusions: SC OB/GYN providers are more likely than family medicine providers to appropriately prescribe LARC to women who are nulliparous, unmarried and have histories of STI/pelvic infections. Our survey identified lack of training and cost of device insertion as major barriers.

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Oral Presentation: **Clinical Science**

This abstract will be printed in the October 2016 issue of Contraception as a publication-only accepted abstract for the North American Forum on Family Planning.

PRESCRIBER PREFERENCES FOR LONG ACTING REVERSIBLE CONTRACEPTION

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Background: In South Carolina (SC) an estimated 75,580 women aged 19 and younger are in need of contraceptive services and supplies. As of 2014, South Carolina had the 12th highest teen birth rate in the U.S. Research has shown that when barriers including costs are removed, teens are more likely to choose and continue using highly effective Long Acting Reversible Contraception (LARC) methods. The objective of this study was to examine SC health care providers' contraceptive prescribing practices with an emphasis on LARC for SC women including adolescents.

Methods: We sent an online survey to women's health care professionals throughout SC via OBGYN, family medicine, nurse practitioner, and physician assistant professional listservs during August and September 2015. We examined differences in LARC prescribing practices for adolescents among varying provider types and professional degrees. Fisher's exact test was utilized to statistically analyze survey results. The Institutional Review Board approved this project as exempt.

Results: Total sample size was 92 respondents. A significantly greater percentage of OB/GYN providers (85%) currently offer LARC to patients less than 21 years of age versus family medicine providers (46%, $p < .001$). A significantly greater proportion of OB/GYN (28%) vs. family medicine providers (4%) reported that women ages 13 and younger are appropriate candidates for the contraceptive implant ($p < .001$). Most OB/GYN (84%) and family medicine providers (61%) indicated that women ages 14-21 are appropriate candidates for the implant ($p = n.s.$). Non-significant differences were found between OB/GYN (10%) and family medicine providers (4%) who responded that women ages 13 and younger are appropriate candidates for IUD, as well as women ages 14-21 (58% and 35% respectively).

Conclusions: In SC, OB/GYN providers are more likely than family medicine providers to offer LARC to patients less than 21 years of age. Overall, providers perceive patients age 14-21 as appropriate candidates for implants while fewer perceive IUDs as appropriate in the same age group. In SC outreach education and training, especially among family medicine providers, are needed to increase provider willingness to offer LARC to teens and adolescents. This research could be easily replicated and applied to broader regions of the United States in order to better understand the gap between young people's needs for effective contraception and health care providers' LARC prescription and insertion practices.

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Category: **Clinical Science**

Poster Presentation at the 30th Annual NASPAG Annual Clinical and Research Meeting in Toronto, Canada, April 7-9, 2016.

CASE STUDY: VELAMENTOUS CORD INSERTION INTO THE DIVIDING MEMBRANE OF DICHORIONIC DIAMNIOTIC TWINS

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Background:

Twin gestation and assisted reproductive technology are two well-described risk factors for abnormal placentation and anomalous cord insertion. Velamentous umbilical cord insertion has been associated with adverse perinatal outcomes, particularly when not diagnosed prenatally.

Case:

We present the case of a dichorionic diamniotic twin gestation with velamentous cord insertion of twin B into the dividing membrane. This pregnancy was the result of a frozen embryo transfer of two embryos. Ultrasound evaluation at 17 weeks gestation revealed the cord insertion of twin B into the intervening membrane with insertion at the posterior interface of the twin membrane coursing to the anterior interface and then inserting into the placenta of twin B. Twin A was found to have a single umbilical artery with normal cord insertion. Maternal Fetal Medicine followed this patient with serial growth ultrasound examinations and antenatal testing with umbilical artery Doppler twice weekly starting at 28 weeks gestation. Delivery was by repeat cesarean section at 35 weeks after preterm premature rupture of membranes (PPROM) of twin A, which was well tolerated by both twins.

Discussion:

This case confirms the increased risk of velamentous cord insertion in twins conceived by assisted reproductive technology and describes a unique cord insertion, with the cord traversing the dividing membrane prior to insertion. It highlights the importance of screening high-risk populations for abnormal placentation and anomalous cord insertion.

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Category: **Clinical Science**

Poster presentation at the joint Annual Meeting Districts IV & VII of the American College of Obstetricians and Gynecologists in White Sulphur Springs, WV, October 14-15, 2016.

DO COUPLES AGREE ON WHY PARTNER AGGRESSION OCCURS? AN INVESTIGATION IN SITUATION-SPECIFIC ATTRIBUTIONS

John Kennington, Kera Stroner, Savannah Crosby, Alana Rosa, Cristina Blanco, Jessica Reynolds, Dr. Kate Holland, and Dr. Angela M. Neal
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Background and Significance: About 13% of relationships consisting of physical IPA (e.g., hitting, pushing), 23% sexual IPA (e.g., coercing or forcing sexual activity), and 15-71% psychological IPA (e.g., insulting, threatening) (e.g., Coker et al., 2002). Understanding both partners' perceptions of why the IPA perpetration occurs is vital to our understanding of these aggressive behaviors. No studies to date that have asked members of the same relationship their attributions for why the same IPA incident occurred. When both are included in the same study, they are victims and perpetrators from different relationships (Neal & Edwards, 2015). The current study examines the extent to which members of a couple agree on the reasons for why specific instances of intimate partner aggression (IPA) happened.

Method: Romantic couples ($N = 52$, from a larger sample of 199 couples) independently reported on the same psychological, physical, and sexual IPA incidents in their relationship. Those indicating the same instances of IPA then reported their attributions for the IPA (e.g., drugs or alcohol, jealousy).

Results: There was fair agreement on which partner was the primary perpetrator, but no agreement on who initiated the incident. There was little to no agreement on attributions for the IPA, though there was substantial agreement in the IPA being attributed to the perpetrator being under influence of drugs or alcohol ($\kappa = .62$). In addition, there was significant, yet fair, agreement on the perpetrator being afraid their partner was going to leave them ($\kappa = .25$), wanting to punish their partner for wrongdoing ($\kappa = .26$), and the perpetrator not believing their partner cared ($\kappa = .32$), and there was moderate agreement on perpetrating because they were cheated on ($\kappa = .41$).

Conclusions: Future research should strive to better understand why discrepancies in partner reports of IPA exist and consider the implications of these discrepancies. IPA prevention programming may be enhanced by acknowledging that partners often have different perspectives on aggressive incidents, and clinical interventions may be enhanced by helping both members of a dyad have a better understanding of each other's perspectives on the IPA.

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Category: **Social Science**

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MENOPAUSE, RURALITY & OBESITY IN RURAL AFRICAN AMERICAN WOMEN

Colleen M. Kilgore

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Abstract

Background and Significance: In the U.S., 1 out of 8 deaths are due to an obesity-related chronic health condition (ORCHC). More than 50% of African American women (AAW) 20 years and older are obese or morbidly obese, as are 63% of menopausal (MT) AAW. Many AAW have ORCHC that increase their morbidity, mortality, and healthcare costs. In 2013, in South Carolina 42.6% of African Americans were obese.

Methods: A cross-sectional, correlational study was undertaken to identify cognitive, behavioral, biological, and demographic factors influencing the above health outcomes among MT and premenopausal (PreMT) AAW living in rural SC. Two hundred AAW (50 each in each of 4 groups of rurality (rural and very-rural) by MT), 18-64 years, completed the Menopausal Rating Scale, Body Image Assessment for Obesity Scale, the Mental Health Inventory, and Block Food Frequency Questionnaires and three tools developed based on a review of literature and reports from three rural women. The Eating Behavior and Chronic Condition, Traditional Food Habit and the Food Preparation Technique questionnaires that addressed cognitive and behavioral factors not included in the above surveys. In addition, the BMI was measured.

Results: Sixty percent of the women had between 1 and 5 ORCHC. Premenopausal women had significantly higher educational levels. Rural and MT women had significantly higher morbid obesity levels and reported most body image dissatisfaction. Knowledge of correct recommended daily servings was lacking as evident by portion size consumed and food preparation techniques. For behavioral factors, only 40 – 50% of AAW knew the correct serving sizes for foods on the food pyramid. Rural women ate the highest recommended daily servings for fruits and vegetables than very rural women and experienced the highest psychological distress. Morbidly obese women ate significantly more meats and grains than obese women and reported greater use of unhealthy food preparation techniques. Controlling for socioeconomic factors; relationships between perceptions of body images, psychological distress, and psychological wellbeing remained significant for BMI groups and numbers of ORCHC.

Discussion: This study among 200 AAW in rural and very-rural South Carolina indicated that obesity remains a complex health issue. The *Healthy People 2020* goal for nutrition and weight status emphasizes improving an individual's knowledge and attitudes towards healthy diet and body weight across communities. African American women's perceptions of body sizes/images significantly impact not only psychological wellbeing, but also their obesity levels, eating behaviors and morbidity levels. This study's findings are pertinent for addressing the influence of perceptions of body size/images on obesity and ORCHC in addressing healthcare needs of AAW. Further investigation in a larger sample of rural and very rural AAW who are not seeking services at health care institutions to compare access to healthy food in each group is warranted.

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Category: **Clinical Science**

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AN UNLIKELY DIAGNOSIS IN A POST-OPERATIVE PATIENT

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Abstract

Background: Close proximity of ureters to female reproductive anatomy put them at risk during gynecologic surgery. Careful evaluation and management of post-operative symptoms, while entertaining a broad differential, is warranted.

Case: 42-year-old woman presented with complaints of abnormal uterine bleeding and dysmenorrhea. After failing medical management, the patient was scheduled for total laparoscopic hysterectomy with bilateral salpingectomy. The case was uncomplicated. She was discharged post-operative day one but presented to the emergency room post-operative day nine with urinary frequency, dysuria, and right lower quadrant tenderness. Following admission, she developed an elevated white blood cell count, emesis, and guarding. Laparoscopic appendectomy was performed for suspected acute appendicitis. Pathology confirmed appendicitis.

Discussion: In this case, imaging suggested appendiceal inflammation but the presentation did not correlate with CT findings. Surgical intervention eventually led to the diagnosis of primary appendicitis. This case demonstrates the importance of entertaining a broad differential when evaluating post-operative patients.

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Category: **Clinical Science**

CREATING A RESOURCE GUIDE TO ENSURE THE RIGHT TO WOMEN'S REPRODUCTIVE HEALTH

Kathryn Luchok and Melissa Davis

Background/significance: South Carolina is home to 4.8 million individuals, for whom sexual and reproductive health care deserves to be seen as essential to their overall well-being. For many South Carolinians, however, access to preventive services and treatments remains limited. Even after national insurance reform, affordability remains a significant barrier to accessing healthcare, as 18 percent of South Carolina adults went without needed care in the past year due to cost. The cost barrier is often coupled with a lack of providers for the 750,000 South Carolinians living in rural counties.

In 2010 while leading a project to increase access to reproductive health services in South Carolina, we conducted interviews with women in domestic violence and homeless shelters about their reproductive health needs. We also interviewed shelter workers about how they understood and addressed those needs. Uniformly we heard that neither women nor workers knew where women could access various reproductive services. Particularly difficult was referrals related to unplanned pregnancy. To address this issue we created the South Carolina Resource Guide which was a county-by-county listing of multiple services, including a one-page quick reference for full options counseling information. Both print and on-line PDFs were available.

Objective/purpose: In 2015 we realized it was time to update, expand and make more accessible the guide.

Methods: Volunteers from a statewide health coalition worked together to expand the guide. One paid staffer contacted each entry in the guide to make sure all data was correct and each member suggested additions and deletions to the 2010 guide. Besides a printable PDF, an interactive searchable SC map of services were on-line.

Discussion/Conclusions: The Access Guide serves as a directory to assist patients and providers in identifying affordable sexual and reproductive healthcare within their region, organized by service and county. By including a range of resources, the Access Guide asserts the vital role sexual and reproductive health plays not only in the context of pregnancy, but throughout an individual's life. It provides a foundation for collaboration and coordination among organizations across the state in pursuit of community-based systems to combat high rates of infant and maternal mortality, STIs, unintended pregnancy and domestic violence.

The Access Guide was launched in 2016. Dissemination activities are underway to make it widely accessible. Other states can follow these procedures to create their own guides.

Reproductive health services cannot be accessible if people do not know where to find them.

This guide provides that first step in listing in one place a variety of needed reproductive health services. http://www.schealthyfamilies.org/access_guide

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Category: **Social Science**

INTERPREGNANCY WEIGHT CHANGE AND ADVERSE MATERNAL OUTCOMES

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Background: Elevated pre-pregnancy body mass index (BMI) is known to increase the risk of adverse maternal outcomes. Less is known about how weight change between consecutive pregnancies impacts pregnancy outcomes. We explored the associations between interpregnancy BMI change and adverse maternal outcomes, specifically gestational diabetes mellitus (GDM), pre-eclampsia (PE), gestational hypertension (GHtn), primary c-section, and vaginal birth after cesarean delivery (VBAC).

Methods: We used data from the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development Consecutive Pregnancy Study, which collected data from 20 hospitals in Utah utilizing electronic medical records (EMRs) and ICD-9 discharge codes. Women with at least two pregnancies during the study period who delivered between 2002-2010 were included (n=51,086 women yielding 114,679 pregnancies). After data exclusions, the study sample included 46,521 women. For the primary c-section outcome, only women without a c-section in their first pregnancy were included (n=38,142). For the VBAC outcome, data were restricted to women with a cesarean delivery in their first pregnancy and a trial of labor in their second pregnancy (n=2,419). Poisson regression models with robust variance estimators were used to predict relative risks of the outcomes with the exposure treated as either continuous or categorical. Unadjusted and adjusted models were developed. Adjusted models included the following covariates: maternal race/ethnicity; maternal age; marital status; smoking and alcohol use during the second pregnancy; interpregnancy interval; GDM, PE, GHtn, and prepregnancy BMI from the first pregnancy.

Results: Between their first two consecutive pregnancies, women gained an average of 0.81 BMI units (interquartile range (IQR) -0.34 to 1.77) over an average interpregnancy interval of 634 days (IQR 373 to 814). After adjusting for potential confounders, every one unit increase in BMI between consecutive pregnancies increased the risk of GDM (relative risk (RR): 1.09 (95% confidence interval (CI): 1.07 – 1.11)), PE (RR: 1.06 (95% CI: 1.04 – 1.09)), GHtn (RR: 1.08 (95% CI: 1.06 – 1.10)), and primary c-section (RR: 1.03 (95% CI: 1.01 – 1.05)) in the second pregnancy. Similarly, after adjusting for potential confounders, every one unit increase in BMI between consecutive pregnancies decreased the risk of a successful VBAC (RR: 0.98 (95% CI: 0.97 – 0.997)) in the second pregnancy. Women with a BMI ≥ 3 units increase were also at a significantly increased risk of GDM (RR: 1.72 (95% CI: 1.52 – 1.93)), PE (RR: 1.60 (95% CI: 1.33 – 1.94)), GHtn (RR: 1.66 (95% CI: 1.42 – 1.93)), primary c-section (RR: 1.29 (95% CI: 1.12 – 1.49)) in the second pregnancy and at a significantly decreased risk of a successful VBAC (RR: 0.89 (95% CI: 0.80 – 0.99)), when compared to women who maintained their BMI between pregnancies (- 1 unit \leq BMI change < 1 unit). GDM was also increased among those who increased their BMI by at least 2 units but not more than 3 units (RR: 1.40 (95% CI: 1.21 – 1.61)) and among those who gained at least 1 unit but no more than 2 BMI units (RR: 1.23 (95% CI: 1.08 – 1.40)).

Conclusion: Using a large dataset of consecutive pregnancies, we showed that an increase in interpregnancy BMI is significantly associated with an increased risk of GDM, PE, GHtn, primary c-section and unsuccessful VBAC. These findings stress the importance of weight management between pregnancies.

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Category: **Clinical Science**

CORONARY HEART DISEASE IN SOUTH CAROLINA WOMEN: DOES FISH CONSUMPTION MATTER?

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Background: Because oily fish contain high amounts of omega-3 fatty acids, fish consumption has been shown to be associated with reduced morbidity and mortality, specifically in regards to cardiovascular disease. In this analysis, we investigated the association between fish consumption and coronary heart disease (CHD), while adjusting for potential confounders, among women in SC.

Methods: Data from the SC Behavioral Risk Factor Surveillance System (BRFSS) from 2011 and 2012 were obtained. These iterations of the survey contained questions pertaining to fish consumption including: type; frequency; and where the fish was caught (water body type and part of the state). The sample for analysis only included respondents who identified as women (n = 15,667). The exposure, any fish consumption, was defined as: never (referent level); <1 time per month; 1-3 times per month; 1-2 times per week; 3+ times per week over the past year. The outcome was measured by responses to the question, "Has a doctor or health professional ever told you that you had angina or coronary heart disease?" Survey analysis procedures were utilized to assess the association between categories of fish consumption and CHD via unadjusted and adjusted logistic regression models. Adjusted models included the following covariates: age group (18-44; 45+); overweight/obese (yes; no); hypertension (yes; no); diabetes (yes; no); heavy drinking (yes; no); ever smoker (yes; no) and interaction term of heavy drinking and ever smoking. Significance of the association of interest was evaluated via odds ratios (ORs) and 95% confidence intervals (CIs) for both unadjusted and adjusted models.

Results: Between 2011 and 2012, approximately 16.5% of women reported that they never ate fish in the past year; while, approximately 5.7% reported eating fish 3 or more times per week in the past year. Approximately 4.3% of the women reported that they had CHD. The unadjusted association between fish consumption and CHD was null for all categories of the exposure (3+ times per week vs. never: OR: 1.64; 95% CI: 0.93-2.89; 1-2 times per week vs. never: OR: 1.17; 95% CI: 0.79-1.72; 1-3 times per month vs. never: OR: 1.21; 95% CI: 0.84-1.76; <1 time per month vs. never: OR: 1.49; 95% CI: 0.94-2.37). Further, the adjusted association between fish consumption and CHD was null for all categories of exposure (3+ times per week vs. never: OR: 1.26; 95% CI: 0.70-2.25; 1-2 times per week vs. never: OR: 0.79; 95% CI: 0.53-1.18; 1-3 times per month vs. never: OR: 0.97; 95% CI: 0.67-1.40; <1 time per month vs. never: OR: 1.28; 95% CI: 0.78-2.10). In the adjusted model, age group, hypertension, and diabetes were significant.

Discussion: As seen in both the unadjusted and adjusted models, fish consumption did not significantly impact the risk of CHD in women, which contradicts the literature. This discrepancy may be because we did not know what kind of fish they were consuming, as most literature reports that benefit is derived from oily fish specifically. However, it is important to note that in women risk of CHD increases as age increases after controlling for presence of hypertension or diabetes. This finding corroborates with the literature. Based on this analysis, it was not how often a woman consumes fish, but her age and consideration of her hypertensive and diabetes status that impacted risk of developing CHD. Further, in SC, women consume fish less frequently than men, so there is an educational opportunity here to teach women of all ages about the benefits of fish consumption.

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Category: **Basic science**

STRESS AND ORAL HEALTH CARE UTILIZATION: A 2013 PRAMS ANALYSIS

Chelsea Lynes¹, Kristin Simpson¹, Portavia Featherstone², Mike Smith², Harley T. Davis¹

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Background: During pregnancy, suboptimal oral hygiene increases the amount of caries or oral bacteria; if oral hygiene is neglected, it may lead to pregnancy gingivitis, tooth erosion and periodontitis, among other oral diseases. Thus, routine oral health care is particularly important for women who are pregnant. Less stress among pregnant women has been associated with higher oral health care utilization. We investigated the association between stress and oral health care utilization among pregnant women in South Carolina (SC) utilizing the Pregnancy Risk Assessment Monitoring System (PRAMS), a statewide surveillance system.

Methods: SC PRAMS collects information about attitudes and behaviors before, during, and after pregnancy in women who have recently given birth. It has been administered in SC since 1992. For the current study, SC PRAMS data from 2013 were obtained (n = 949; weighted n = 52,378). The exposure was based on four categories of stressors (physical violence, sickness or death in the family, economic stress, and other) and was categorized into number of stressors (0, 1, 2, or 3+). The outcome, oral health care utilization, was defined based on the respondent's reporting of having her teeth cleaned during her most recent pregnancy. Survey analysis procedures were utilized in SAS 9.2 to evaluate significance of demographic variables among the levels of exposure via chi-square tests, and to build unadjusted and adjusted models for the association of interest. Odds ratios (ORs) and 95% confidence intervals (CIs) were obtained from survey logistic regression models. Covariates of interest were selected via significance in unadjusted logistic regression models with the exposure. The covariates of interest included in the adjusted model were: oral health insurance during pregnancy (yes or no); income level (0-15K, >15K – 26K, >26K – 37K, >37K – 52K, >52K); education level (less than high school, high school graduate, some college, or college graduate); and race/ethnicity (Non-Hispanic White, Non-Hispanic Black, or other).

Results: During their most recent pregnancy, approximately 15% of women experienced 3+ stressors while approximately 29% experienced no stressors. Over 46% of women reported that they had gotten their teeth cleaned during their most recent pregnancy. Those with 3+ stressors during their most recent pregnancy had lower educational attainment (p = 0.0289); lower income level (p = 0.0022); lower prevalence of meeting the prenatal care recommendation of first visit within the first three months of pregnancy (p = <0.0001); and had lower mean age (24.86 years (±1.53) vs. 28.87 years (±1.11)), compared to those with no stressors. A higher number of stressors was significantly associated with lower unadjusted odds of getting teeth cleaned during pregnancy (OR: 0.338; 95% CI: 0.151-0.756). After adjusting for covariates of interest, a higher number of stressors was no longer significantly associated with lower oral health care utilization (OR: 0.600; 95% CI: 0.237-1.517). In the adjusted model, education level and having dental insurance were significant.

Discussion: As expected, there were demographic differences between those with the highest number of stressors and those with no stressors during their most recent pregnancy. High number of stressors was associated with lower oral health care utilization in the unadjusted model, which corroborates with the literature. However, the adjusted model was not significant. The literature reports that pregnant women with lower stress usually have higher social support, so perhaps a measure of social support would have been more appropriate for the exposure. Regardless, the adjusted model shows that those without dental insurance and those with lower education were less likely to receive routine oral care. Increasing oral health care access and utilization for women of lower education status is important to preventing oral disease. Despite the non-significant findings, it is crucial for all women to understand the importance of routine oral health care and resolving stressors via social support during pregnancy.

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Category: **Basic Science**

OVERCOMING RESISTANCE TO TARGETED THERAPY IN BREAST CANCER THROUGH INHIBITION OF CDK8

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Background and Significance: Over 70% of breast cancer patients are estrogen receptor (ER) positive and 25% of patients over-express HER2 making these patients susceptible to therapeutic intervention with ER- and HER2-targeted therapies, respectively. However, intrinsic and acquired resistance to targeted therapies is a significant clinical issue and new therapeutic approaches aimed to preventing and overcoming resistance are urgently needed. We have previously shown that high expression of CDK8, a transcription regulating kinase, is associated with shorter relapse free survival in both ER and HER2 positive breast cancer. In the present study we examine the effects of targeting CDK8 in both ER and HER2 positive breast cancer.

Methods and Results: We have found that CDK8 inhibition by a selective small molecule inhibitor (Senexin B), by shRNA knockdown or by CRISPR/CAS9 knockout, strongly inhibits estrogen signaling in ER-positive breast cancer cells. Senexin B produces a synergistic growth inhibitory effect with an antiestrogen fulvestrant in all the tested ER-positive breast cancer cell lines *in vitro* and in MCF7 xenograft model *in vivo*. Senexin B treatment also inhibited invasive growth of MCF7 xenografts. CDK8 inhibition suppressed the emergence of estrogen independence upon long-term estrogen deprivation. A highly synergistic growth inhibitory effect occurred when Senexin B was combined with an anti-HER2 monoclonal antibody (a biosimilar of trastuzumab) or with the HER2/EGFR small molecule inhibitor lapatinib. These synergistic effects were observed in all HER2 positive breast cancer cell lines tested including those that exhibit innate and acquired resistance to HER2 targeting therapy. Furthermore, combining lapatinib with Senexin B completely abrogated the emergence of acquired lapatinib resistance.

Conclusion: Taken together these results suggest that combining CDK8 inhibition with either ER or HER2 targeted drugs has a strong potential for breast cancer therapy, which may overcome and prevent targeted therapy resistance.

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Category: **Basic Science**

This work was previously presented at the International Association of Breast Cancer Research meeting Aug 4th 2016.

MATERNAL MORTALITY IN SOUTH CAROLINA, 2011-2015

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Background: Maternal mortality has been increasing in incidence across the United States in recent years. This increasing trend contrasts sharply with decreases in maternal mortality observed in other developed nations over the past decade. In the last South Carolina legislative session, a bill was passed to create a maternal mortality review process for pregnancy-related deaths in South Carolina. This process will examine data from a variety of sources, including medical records, to more clearly determine which deaths are truly pregnancy-related and whether these deaths were potentially preventable through improved systems-level interventions (e.g., trainings, protocols). The purpose of this analysis is to use South Carolina vital records data to provide some basic incidence and demographic estimates related to maternal mortality until more detailed data are available from the maternal mortality review process.

Methods: South Carolina birth certificate and death certificate data were linked (where applicable) for potentially pregnancy-related deaths occurring from 2011-2015 to examine the number and rate of maternal deaths by year and by several demographic characteristics. The World Health Organization's definition of maternal deaths was used to facilitate comparison to national maternal mortality rates. This definition includes all deaths during pregnancy or within 42 days of delivery with an ICD-10 cause of death code including: O00 – O95, A34, O98, or O99. It is important to note that this definition differs from the one that is being used by the South Carolina Maternal Mortality and Morbidity Review Committee.

Results: There were a total of 64 maternal deaths meeting the World Health Organization's maternal mortality definition in South Carolina from 2011-2015. The rate of maternal mortality increased from 19.2 deaths per 100,000 live births in South Carolina in 2011 to 33.0 deaths per 100,000 live births in 2014 before dropping to 20.6 deaths per 100,000 live births in 2015. Of these 64 deaths, many (43.8%) occurred during pregnancy or on the day the infant was delivered. The rate was highest for women 35 years of age or older (64.9 deaths per 100,000 live births). Additionally, non-Hispanic Black women had a rate of maternal mortality that was 3.7 times greater than the rate among non-Hispanic White women (45.4 deaths per 100,000 live births compared to 12.0 deaths per 100,000 live births, respectively).

Conclusion: Maternal mortality continues to be a substantial public health concern in South Carolina as well as across the United States. Demographic disparities in maternal mortality exist in South Carolina, including a substantial racial disparity. The upcoming results of the South Carolina maternal mortality review process will be essential to improving our understanding of the causes of maternal deaths and the potential for preventing similar deaths from occurring in the future.

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Category: **Clinical Science**

INTERNATIONAL UNIVERSITY STUDENTS' KNOWLEDGE, ATTITUDE AND UPTAKE OF HUMAN PAPILLOMA VIRUS AND CERVICAL CANCER PREVENTION

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Background: Human papilloma virus (HPV) infections and related diseases (e.g., cervical cancer) are responsible for high morbidity and mortality rates among women globally. HPV prevalence peaks in young, sexually active adults aged 20 to 24 years. Though these diseases are preventable, HPV infection remains the most sexually transmitted infection and cervical cancer the fourth leading cause of women's death globally. Preventive measures such as HPV vaccination and Papanicolaou (Pap) smear have not been greatly used globally for a variety of country and culture-dependent factors. When young adults from these countries and cultures move to the United States to further their education, they are at increased risk for HPV infection. While there are approximately 975,000 international students studying in American colleges and universities, little research has examined the experiences of international students regarding HPV and cervical cancer.

Objective: The purpose of this qualitative, descriptive study was to explore knowledge, attitudes, and practices of university undergraduate and graduate international students regarding HPV and cervical cancer.

Methods: This study was conducted as part of a class assignment. Participants included undergraduate and graduate international students at the University of South Carolina in Columbia, and were recruited through purposive and snowball sampling. The five participants were three females and two males, all over the age of 18; countries of origin included Nigeria, China, and Dubai. Data included audio-recorded interviews and a focus group discussion, as well as written field observations of campus locations frequented by international students. We used thematic analysis to analyze the data, first transcribing the audio-recordings verbatim, and then generating initial codes using a line-by-line approach. This was followed by an iterative process of identifying, reviewing, defining, and refining salient themes, attending to reflexivity by constantly questioning how our individual knowledge and presuppositions could influence the analysis process.

Results: Five themes emerged, including *Sources of Health Information; Differences in Health and Healthcare Systems; Limited Knowledge about HPV, Cervical Cancer, and Prevention; Attitudes toward Health, Vaccination, and Screening;* and *Student Expectations, Perceptions, and Suggestions.* While the students generally had limited knowledge about HPV and cervical cancer, as well as gendered and negative attitudes toward health and health care, they expressed willingness to learn more about their health, especially if recommended to do so by healthcare professionals. They also offered suggestions in how to better target and message international students regarding HPV prevention and treatment.

Conclusions: These findings address a gap in knowledge regarding international students and HPV/cervical cancer. These students represent an important catch-up population for HPV vaccination and cervical cancer screening. HPV vaccination is routinely recommended for both females and males; the findings of this study on gender differences in HPV vaccine perception will help inform the framing of strategies for tailoring content for health education, and improving vaccination in international students. The findings underscore the need of international students to receive health education on available vaccines, preventive services, and precautionary measures. Study participants relayed that healthcare provider recommendations will motivate them to take up HPV vaccination and cervical screening. When given proper health education and guidance, young adults have the capacity to make informed decisions; therefore, the role of healthcare providers cannot be overemphasized. Healthcare providers in variety of health settings, including student health centers, can use this evidence to tailor interventions that meet the needs of this vulnerable population.

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Category: **Clinical Science**

Poster was presented at the Upstate Area Health Education Center Fourteenth Annual Research Symposium in Greenville.

EXCLUSIVE BREASTFEEDING AND DIAGNOSIS OF ALLERGIC CONDITIONS AND ASTHMA AMONG 6-YEAR-OLD US CHILDREN

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Abstract

Background and Significance: Allergic conditions and asthma are common diseases in the United States and remain a significant cause of morbidity in early childhood. The American Academy of Pediatrics (AAP) recommends breastfeeding as the best source of nutrition for neonates and infants. However, previous studies examining the relationship between breastfeeding patterns and allergic conditions or asthma are inconclusive. The objective of the study was to examine the association between meeting AAP's recommendations for exclusive breastfeeding and physician-diagnosed allergic conditions and asthma among 6-year-olds.

Methods: Data came from the Infant Feeding Practices Study (IFPS) II conducted in 2005-2007 and its Year 6 Follow up (Y6FU) conducted in 2012 (n=1261). Using the 2005 AAP recommendations, exclusive breastfeeding was grouped into 4 categories: no breastfeeding; breastfeeding but not exclusively; exclusive breastfeeding < 4 months, exclusive breastfeeding \geq 4 months. Multivariable logistic regression models were used to examine the associations between breastfeeding and our outcomes (eczema /skin allergy, hay fever/ respiratory allergy, and asthma) while adjusting for race/ethnicity, maternal education, income, gender, family history of allergy, and reported eczema at 1 year of age.

Results: The prevalence of current physician diagnosis of hay fever/respiratory allergy, eczema/skin allergy, and asthma at 6 years old were 18.9%, 12.7%, and 6.7%, respectively. About 14 % of mothers did not breastfeed, while 41.6 % breastfed, but not exclusively, 26.2% exclusively breastfed for < 4 months, and 18.2% exclusively breastfed for \geq 4 months. Compared with children who were exclusively breastfed \geq 4 months, children who were breastfed but not exclusively had 2.4 times higher odds of eczema/skin allergy (adjusted odds ratio (AOR): 2.4, 95% CI: 1.4, 4.3) while the odds of eczema/skin allergy among those who were exclusively breastfed for < 4 months and who were never breastfed were not significantly different from the reference group. We did not find significant associations between breastfeeding and hay fever /respiratory allergy and childhood asthma. Compared with children who were exclusively breastfed \geq 4 months, non-exclusive breastfeeding was not associated with hay fever/ respiratory allergy (AOR: 1.2, 95% CI: 0.8-1.9) or asthma (AOR: 1.1, 95%CI: 0.6-2.0). Significant predictors of hay fever/ respiratory allergy were reported history of eczema at 1 year (AOR: 2.9, 95% CI: 2.1-4.2) and positive family history of allergy (AOR: 2.2, 95%CI: 1.6-3.2), while significant predictors of asthma were Hispanic race (AOR: 1.7, 95% CI: 1.1-4.2) and reported history of eczema (AOR: 1.64, 95% CI: 1.1-2.7). Reported history of eczema at 1 year and male gender were significant predictors of eczema/skin allergy (AOR: 6.3, 95% CI 4.2-9.3; AOR: 0.7, 95% CI 0.5-0.9, respectively).

Conclusions: Our study found that offspring, who were breastfed but not exclusively, had a higher odd of eczema/skin allergy than those were exclusively breastfed for \geq 4 months. However, the potential benefits of breastfeeding on allergic conditions and childhood asthma cannot be ascertained from the study. In conclusion, given other well-established benefits of breastfeeding, mothers should still be encouraged to follow the AAP's guidelines for breastfeeding.

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Category: **Clinical Science**

MATERNAL GESTATIONAL WEIGHT GAIN AND OFFSPRING'S WEIGHT AT 1 YEAR OF AGE IN RURAL GUANGXI PROVINCE, CHINA: THE MEDIATING ROLE OF BIRTH WEIGHT

Olubunmi Orekoya¹, Jihong Liu¹, Sarah Rothenberg¹, Nansi Boghossian¹, Linda Hazlett¹, Bo Cai¹.

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Abstract

Background and Significance: Previous studies have shown that maternal gestational weight gain (GWG) is a significant risk factor for childhood obesity in most developed countries. However, little is known about maternal GWG and its association with offspring's weight in developing countries especially in rural areas. The objective of this study was to examine the association between GWG and offspring weight in infancy in rural China and assess the possible mediating role of birth weight in this association.

Methods: Data came from a recent prospective cohort study of 315 pregnant women and their offspring living in rural Guangxi province of China. GWG was examined both as a continuous variable (i.e., total weight gain) and a categorical variable (that is, being excessive, adequate and inadequate according to the Chinese BMI cut-off and the Institute of Medicine's guidelines on weight gain). Multiple linear regression models were used to examine the association between GWG and offspring's weight-for-age Z-scores (WAZ) at 12-14 months. Mediation analyses were conducted to decompose the total effects of GWG into direct effect and indirect effect via offspring birth weight using Tyler VanderWeele's SAS macros for mediation analysis.

Results: In our cohort, on average women gained 11.7 kg (± 5.1) during pregnancy. Gaining inadequate weight during pregnancy (51.1%) was more prevalent than gaining excessive (20.0%) or adequate (29.8%) weight. In adjusted analysis, total GWG was positively associated with offspring's weight-for-age Z-scores ($\beta=0.02$; $p=0.042$) i.e. for every one kg increase in GWG, WAZ increased by 0.02. We also found that mean WAZ-scores for infants born to farmers or Zhuang ethnicity were significantly lower when compared to non-farmers ($\beta=-0.21$; $p=0.04$) or Han and other ethnicities ($\beta=-0.28$; $p=0.04$), respectively, while offspring of mothers with gestational diabetes had a higher WAZ-scores ($\beta=0.89$; $p=0.04$). Mediation analysis showed that 58% of the effect of total GWG on offspring WAZ scores was mediated by its indirect effect via birth weight. Excessive or inadequate GWG were not significantly associated with offspring WAZ when compared with adequate weight gain ($-\beta=0.20$; $p=0.08$, and $\beta=0.11$; $p=0.41$ respectively)

Conclusion: In rural China, maternal GWG was significantly associated with offspring's weight-for-age Z scores at 1 year of age. Birth weight may mediate the association between maternal GWG and offspring's weight in infancy. Helping pregnant women gain healthy weight during pregnancy may have impact on offspring's physical growth in rural China.

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Category: **Clinical Science**

MODELING THE ROLE OF STRESS IN MAJOR DEPRESSION AMONG AFRICAN AMERICAN MIDLIFE WOMEN

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Abstract

Background and Significance. Epidemiologic studies indicate that midlife women are at increased risk for the onset of new as well as recurrent episodes of clinical depression. There is a paucity of research of stress as a risk factor that influences the occurrence, severity, and course of depression specific to midlife African American women. The purpose of the current study was to close existing gaps in the literature knowledge by model the ability of three stress models to predict depression among midlife African American women. Specifically, Life Course, Stress Exposure, and Stress Generation models were tested for their ability to predict depressive symptoms severity, current depressed days, and lifetime diagnosis of major depression among midlife African American women.

Methods. Data were analyzed from the 2010 Behavioral Risk Factor Surveillance System, an ongoing, state-based, random-digit-dialed telephone survey of the noninstitutionalized U.S. population aged 18years. A total of 10,783 Black women aged 18 to 64 years were interviewed from 38 states, 2 U.S. territories, and the District of Columbia (DC). Overall, 13.8% of Black women reported current depressive symptoms, and 14.9% reported a lifetime diagnosis of a depressive disorder by a health care provider.

Results. Exploratory factor analyses were used to reduce the data summary scores representing each of three stress models. Multiple regression models (logistic, linear, and ordinal, respectively) tested the ability of the three stress models to predict the various depression indices. The Life Course Model of Depression was the only model to predictive all three indices of depression (severity, current number of depressed days, and lifetime Major Depression diagnosis). Childhood adversity is a major component of the Life Course Model of depression and stress. This model posits that depression trajectories are exacerbated by the influence of childhood adversity as a factor that increases later adult life stress. Specifically, life course stress had a significant effect on the likelihood of experiencing increased symptom severity, Wald $\chi^2=5.083$, $p=.024$ and current number of depressed days ($F_{1,134}=5.228$, $p=.024$). Life Course stress predicted the likelihood of being diagnosed with Major Depression in one's lifetime, $\chi^2(1)=3.929$, $p=.047$. For every unit increase in the model, the odds of being diagnosed with a major depressed disorder increased by a factor of 1.476, Exp. (.389)=1.476.

Conclusions. This study indicates that a substantial cohort of midlife Black women acutely experiences the burden of depressive symptoms and have been diagnosed with depressive disorders during their lifetimes. The findings punctuate the roles of cumulative life stress coupled with childhood adversity as key risk factors for midlife depression among African American women.

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EXPLORING THE RELATIONSHIP BETWEEN CHURCH LEVEL PREDICTORS OF STATUS AND OBESITY RISK IN AFRICAN AMERICAN WOMEN OF FAITH

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Background & Significance: African American women are more likely to be classified as obese as compared to all other gender and racial groups. Furthermore, the rates of obesity are much greater in the Southern region of the United States. Among this region lies the area commonly referred to as the “Bible Belt,” where Christian church attendance across denominations, but especially among African Americans, is generally higher than the nation's average. Given the high rates of obesity and church attendance in this region, scholars have targeted African American churches to implement dietary and physical activity interventions in an attempt to combat obesity disparities. Despite the numerous interventions that take place in churches, very little is known about the socioeconomic status parameters of church affiliation in regard to organizational power, prestige, and hierarchy. A large body of research demonstrates that both socioeconomic status and subjective social status impacts health outcomes. However, no studies to date have examined the role of church social status on obesity outcomes. The purpose of this study is to examine how markers of church related status, relate to total and central measures of adiposity in a sample of Southern, religious, African American females.

Methodology: Data for the current study comes from two sources: 1) a large dietary and physical activity intervention conducted in churches in the Midlands of South Carolina from 2010 to 2014 and 2) data from a 2016 survey measuring church prestige. Participants were 790 African American females, ages 25 to 86 (M=57.28, SD=11.92). All anthropometric measurements, including height, hip and waist circumferences, total body weight, and fat mass obtained via bioelectrical impedance assessment (BIA). The church variables from this study are single item demographic questions adapted from a large randomized control trial entitled Project Joy. Information on an additional variable, church prestige, was measured in a separate survey conducted in 2016 in which participants were asked to rate area churches on a scale of 1 to 10, based on the MacArthur Scale of Subjective Social Status.

Results: The single item church variables and the church prestige question were entered into an exploratory factor analysis to find the underlying dimensions of church social status. Results indicated a three factor solution for the construct of church social status. These factors were named church prestige, church hierarchy, and church socioeconomic status. These factors were entered into four hierarchical regressions as predictors while overall (body mass index, fat percentage), and central (waist circumference and waist to hip ratio), measures of adiposity were entered as dependent variables. Results from the hierarchical regressions demonstrated church prestige was negatively related to fat percentage and body mass index. Church hierarchy was positively related to waist circumference.

Discussion: Overall, results indicated that the dimensions of church social status are related to some measures of overall adiposity. These results are consistent with the literature that suggests that the higher one's status, the better one's health. In this case, the greater the church prestige, the less central adiposity (i.e. healthier) of the individual. Researchers implement many obesity interventions in churches without understanding how the spaces we hold these interventions can impact the results of the intervention. This correlational study showed that components of church social status do impact measures of obesity such as body mass index, fat percentage, and waist circumference. These results suggest that components of church organization (i.e. hierarchy), the perceived status of the church in the community (i.e. prestige), and the education level and social class of the congregation (church socioeconomic status), all play a role in the health and well-being of its congregations.

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Category: **Social Science**

DEPRESSIVE SYMPTOMS, STRESS, AND SERUM INFLAMMATION LEVELS, AMONG AFRICAN AMERICANS IN A RANDOMIZED COMMUNITY LIFESTYLE TRIAL

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Background & Significance: After 55 years of age African Americans are at increased risk of clinical depression. The objective of our study is to describe the biopsychosocial stress and inflammatory predictors of depressive symptoms in community-dwelling African American adults between 55-70 years of age. Circulating inflammatory markers such as interleukin-6 (IL-6) and C-reactive protein are higher among older individuals with greater depressive symptomatology. Exploring differences in stress biology is a logical way to start to understand depression disparities among African Americans, as they age.

Methodology: Control and intervention participants from a community-based randomized controlled trial (RCT) completed baseline demographic, clinical measures, psychosocial questionnaires. Serum IL-6 and C reactive protein were treated as a composite measure of inflammation. Most participants (80%) were female and well educated (i.e., with 97% attaining at least a high education).

Results: The mean age of the sample was 61 years ($SD= 4.15$). Hierarchical regression models were fit to identify the ability of logged stress and the composite inflammatory variable to logged CESD-10 scores. Age, education and body mass index (BMI) were forced into all analyses after variance was obtained for other predictors. 37% of the variance in CESD-10 scores for the total sample was explained by lower education ($\beta= -0.10, p=0.03$), increased stress ($\beta=0.57, p= 0.001$), and higher composite inflammation ($\beta= 0.78, p= 0.01$). Females shared similar predictors explaining 41% of the variance in self-reported depression symptoms (e.g. lower education ($\beta= -0.101, p=0.049$), increased stress ($\beta= 0.591, p= 0.0001$), and higher composite inflammation ($\beta= 0.187, p=0.001$). 27% of the variance in CESD-10 symptoms was predicted by only one variable, perceived stress ($\beta= 0.027, p= 0.001$), among men in our sample.

Discussion: Findings from this study provide empirical support for the hypothesis that both self-reported and inflammation-related stress influence bio-behavioral systems among aging African - American males and females, which create gender-mediated pathways to depression symptomatology.

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Category: **Clinical Science**

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REVIEW OF ASPIRIN FOR PREECLAMPSIA PROPHYLAXIS

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Abstract

Background and Significance: One third of severe maternal morbidity is related to preeclampsia. Fetal risks of the condition include intrauterine growth restriction (IUGR), low birth weight, prematurity, oligohydramnios, placental abruption, NICU admission, stillbirth, and fetal death. Preeclampsia is also a major contributor to preterm birth as delivery is the curative management.¹¹ Preeclampsia is considered the second leading cause of maternal mortality in the world.¹¹ A handful of small studies performed in the 1980's demonstrated that using low-dose aspirin (ASA) was effective in decreasing the incidence of preeclampsia in comparison to placebo or no treatment.¹⁻³ Two large studies were done in the 1990s to again assess aspirin use in preeclampsia prevention. Neither study showed a significant reduction in development of preeclampsia in at-risk mothers.^{4,5} However, meta-analyses combining data from these and various other trials did show significant reduction in preeclampsia, particularly when started early in gestation for women at the greatest risk for developing preeclampsia. This prompted the United States Preventive Services Task Force (USPTF) to perform their own systematic review. Their review found that ASA use significantly reduced preeclampsia, IUGR, and preterm birth, without significant maternal or fetal harms. In late 2014, they issued a recommendation for prescribing 81mg of daily ASA for women with high risk pregnancies. Here, a retrospective chart review is proposed, to compare the preeclampsia outcome in high-risk pregnant patients prior to the USPTF recommendation with a similar cohort of patients who entered pregnancy after the recommendation was published. The study will also examine the implementation of prophylactic aspirin use in the medical practices under review; and it will evaluate whether patients using the 81mg dosage, which has not been reported in the literature, experienced a decline in the occurrence of preeclampsia, as compared to similar patients who did not take aspirin.

Methods: A retrospective chart review of deliveries of USC Specialty Clinics, MFM, and Palmetto Health Women's Center patients during the months of April, August, and December from 2014 and 2015 at Palmetto Health Richland. Data was collected on ASA use recommendations, development of preeclampsia, and medical risk factors for preeclampsia as described by the USPTF recommendations.

Results: A total of 608 charts were reviewed and met inclusion criteria from the described time period above, 298 in 2014 and 310 in 2015. By year of delivery, there was a statistically significant difference in recommendation of aspirin use between 2014 and 2015, consistent with our expectation following the USPTF published recommendation. ASA recommendation was significant for patients with a history of CHTN, renal disease, autoimmune syndromes including APA and SLE, and with a history of preeclampsia in a previous pregnancy. Further data analysis is being conducted to evaluate the effect of increased ASA recommendation on preeclampsia development between the two years evaluated.

Conclusion and Discussion: Based on this review, recommended use of ASA did increase between 2014 and 2015, though not consistently in all of the recommended risk factor categories identified by the USPTF in their publication. A limitation of this study was the small sample size of the aspirin group; therefore, the effect of the 81mg dosing on preeclampsia prevention could not be adequately assessed. Future studies could consider prospective comparison of aspirin use versus placebo in identified at risk patients for preeclampsia as described by the USPTF.

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Oral Presentation : **Clinical Science**

THE ROLE OF OVARIAN FUNCTION AND INTERLEUKIN 6 IN THE REGULATION OF SKELETAL MUSCLE OXIDATIVE METABOLISM IN TUMOR BEARING MICE

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Background and Significance: Cachexia is a complex metabolic syndrome resulting from an underlying disease (cancer) that involves the unintentional loss of bodyweight, including muscle and fat mass. The IL-6 family of cytokines have an established regulatory role in cachectic signaling in several preclinical mouse models. Studies regarding cachexia and IL-6 have largely been conducted in male mice; however, our lab has noted sex differences in the cachexia development and IL-6 response using the *Apc*^{Min/+} mouse. Elevated plasma IL-6 in tumor bearing mice increases muscle inflammation and decreases oxidative metabolism. The decrease of muscle oxidative metabolism during cachexia has been established in the male *Apc*^{Min/+} mouse model however, very little has been done to examine the role of ovarian function and IL-6 in the regulation of oxidative metabolism in the female. The purpose of this study is to investigate the role of ovarian function and interleukin 6 on the regulation of skeletal muscle oxidative metabolism through overall oxidative capacity, mitochondrial biogenesis and dynamics in tumor bearing mice.

Methods: Female *Apc*^{Min/+} mice were divided among four groups: control (n=13), sham+IL-6 overexpression (n=10), OVX+vector (n=10), OVX+IL-6 (n=8). Mice underwent electroporation of an IL-6 overexpression or control vector at 13 week of age. At 18 weeks, mice were sacrificed and hind-limb muscles were collected. The tibialis anterior muscle was cryo-sectioned and mounted for H&E staining. Mitochondrial content dynamics were examined by COX assay and western blot.

Results: A main effect of IL-6 increased MHC IIA positive myofibers and decreased myofiber cross sectional area. Ovariectomy increased COX enzyme activity which was attenuated by IL-6 overexpression. Additionally, ovariectomy decreased PGC-1 α protein expression. There was also main effect of ovariectomy to increase muscle FIS-1 protein expression independent to IL-6 overexpression.

Discussion: The ovariectomy induction of muscle COX activity is attenuated by IL-6 suggesting these two processes may regulate oxidative metabolism. Decreased PGC-1 α protein expression suggests a role for ovarian function in the regulation of mitochondrial biogenesis. The ovariectomy induction of FIS-1 protein expression independent to IL-6 overexpression suggests ovarian function may regulate muscle mitochondrial dynamics. Collectively, these results suggest a role for ovarian function and IL-6 in the regulation of skeletal muscle oxidative metabolism.

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Category: **Basic Science**

**Will be presented at Southeastern Medical Scientist Symposium in November*

PERSONALITY CHARACTERISTICS AND WOMEN'S HEALTH: EVIDENCE THAT HIGH LEVELS OF TRAIT HOSTILITY AND ANXIETY REDUCE OVERALL QUALITY OF LIFE

Alana Rosa, Cristina Blanco, John Kennington, Kera Stroner, Jessica Reynolds, Angela Neal, and Kate Holland

Background and Significance: Our lab has conducted multiple experiments examining the effects of personality on the ability to process stress, which has been demonstrated to differentially require right hemisphere resources. We have consistently found sex differences across experiments, including the ability to complete a spatial task after consuming caffeine (Holland et al., 2014), and the ability to complete a motor task upon exposure to emotional stress, (Newton et al., 2014). The current research is a comparison of two experiments examining changes in the ability of the right hemisphere to regulate two stressors concurrently in women with high levels of trait hostility (experiment one) and trait anxiety (experiment two).

Methods: For experiment one, 163 women completed the Cook-Medley Hostility Scale, and a Sleep Quality Scale. Twenty high hostile women and 27 low hostile women then completed the Controlled Oral Word Association Task and the Ruff Figural Fluency task. Heart rate and blood pressure measures were taken before and after completing these tasks. For experiment two, 157 women completed the Trait subscale of the State-Trait Anxiety Inventory, a Medical History Questionnaire, and a Facial Affect Identification measure. Twenty-eight high and low trait anxious women then completed the Affective Auditory Verbal Learning Task after viewing a video depicting animal neglect. Heart rate and blood pressure measures were taken before and after each experimental condition.

Results: For experiment one, we ran a series of simple linear regression analyses to examine the relationship between trait hostility and measures of overall sleep quality. These analyses revealed that high hostile women reported feeling more depressed upon waking ($F(1, 162) = 4.021, p = .001, R^2 = .091$), although there were no group differences in the number of hours of sleep reported ($F(1, 162) = 1.123, p = .27, R^2 = .007$). Laboratory data revealed that high hostile women had higher heart rate across all conditions ($F(1, 44) = 5.22, p = .02$) compared to low hostile women, and made more errors on the later trials of the verbal fluency task. For experiment two, we ran a series of simple linear regression analyses to examine the relationship between trait anxiety and accuracy in identification of facial affect. High trait anxious women made more errors in identifying facial emotion (i.e.: neutral, angry, sad) compared to low anxious women ($F(1, 156) = 6.004, p = .01, R^2 = .037$). Laboratory data revealed that high trait anxious women made more errors on the AAVLT compared to low trait anxious women ($F(1, 26) = 5.09, p = .030$). Moreover, a Trait x Condition interaction approaching significance ($F(1, 34) = 3.38, p = .07$) indicated that highly anxious women had higher blood pressure readings after stress.

Discussion: The results support our prediction that high levels of trait hostility and anxiety effect quality of life in women. High hostile women reported reduced sleep quality and increased cardiovascular reactivity to laboratory stressors compared to low hostile women. Similarly, highly anxious women reported more medical symptoms and increased systolic blood pressure after exposure to stress. Both experiments used a dual concurrent task approach to examine changes in right hemisphere activation and revealed that both high hostile and highly anxious women were less able to manage stress. Taken together with findings from the screening data, high levels of hostility and anxiety adversely impact quality of life for college aged women.

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Category: **Social Science**

PHYSICAL ACTIVITY IN SOUTH CAROLINIAN MOTHERS AND ITS ASSOCIATION WITH GESTATIONAL WEIGHT GAIN

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Abstract

Background and Significance: Almost half (46%) of American women exceed the Institute of Medicine (IOM) recommendation for weight gain during pregnancy. Excessive gestational weight gain (GWG) has been linked to pregnancy complications and negative health outcomes for both the mother and her offspring. There is also evidence to suggest that African American (AA) women are more likely to enter pregnancy as overweight or obese and experience excessive GWG. Because of this, excessive GWG poses a growing health risk to both mothers and their offspring, particularly in AA populations. Previous research has shown that light to moderate physical activity (PA) during pregnancy is healthy for both mother and child, and is an effective way to control GWG; our aims are to look at PA levels in women before and during pregnancy, and to identify if there is a relationship between PA before/during pregnancy and adequacy of GWG.

Methods: The Pregnancy Risk Assessment Monitoring System (PRAMS) is an ongoing, population-based Centers for Disease Control and Prevention funded survey that has been administered in South Carolina (SC) since 1991. PRAMS collects data on maternal behaviors, attitudes, and experiences before, during, and after pregnancy. The data are weighted to reflect the statewide population that gave birth that year. Survey analysis procedures were utilized in SAS 9.2 to evaluate the association between GWG and PA before and during pregnancy on SC PRAMS data from 2013 (n=949). Chi-square tests were utilized to identify demographic differences among women who were below, exceeded, and met IOM recommended gestational weight gain. Logistic regression analyses were used to evaluate the associations between PA before and during pregnancy (<3 times/week vs. ≥3 times/week) and IOM recommended GWG.

Results: Of the 949 women who completed a PRAMS survey in 2013, 612 women had complete data on all independent, dependent, and covariate variables. There were significant differences in GWG among BMI categories (underweight, normal weight, overweight, obese) of women (p-value <0.0001) and levels of PA in pre-pregnancy (p-value 0.0093). Though there were no significant differences in GWG when considering PA either before or during pregnancy, there were significant racial differences, with AA women roughly 4 times more likely to have excessive gestational weight gain than Caucasian women (OR: 4.09, 95% CI: 1.55-10.80).

Discussion: Though no differences in recommended gestational weight gain were observed when comparing PA levels, racial differences in gestational weight gain suggest that future PA interventions before and during pregnancy should be directed towards AA women.

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IMPACT OF BIOLOGICAL ATTRACTIVENESS ON BMI AND BODY FAT PERCENTAGE

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Background and Significance: Waist-to-hip ratio (WHR) has been a reported indicator of health and reproductive status. This has led to many studies on the relationship between WHR and perceived attractiveness. Studies have shown that women with a WHR of .70 are perceived more attractive by men than women with a WHR of .80. The purpose of this study was to compare body composition and body mass index (BMI) based on perceived attractiveness quantified by WHR.

Methods: 45 full-time female students 18-25y participated in this study. Anthropometric measures were collected (height, weight, waist and hip circumferences). Percent body fat data were collected using a DXA scan (Lunar iDXA). Students were divided into groups based on WHR (less than or equal to .74 = attractive or greater than or equal to .75 = not attractive).

Results: A one-way analysis of variance (ANOVA) was used to determine if differences exist between BMI and body fat percentage based on WHR. There was a significant effect of WHR on BMI (attractive = 22.98 ± 3.38 kg/m²; not attractive = 26.49 ± 6.74 kg/m²) at $p < 0.05$ level [F (43, 1) = 5.44, $p = 0.024$], but not body fat percentage (attractive = $32.74 \pm 5.35\%$; not attractive = $35.69 \pm 6.84\%$) [F (43, 1) = 2.52, $p = 0.120$].

Conclusion: The study showed women who were categorized as attractive based on WHR had a normal BMI, but a body fat percentage above the healthy range. Attractiveness based on WHR and BMI could lead to an underestimation of health risks associated with excess body fat.

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REPRODUCTIVE COERCION AS A PREDICTOR OF INTIMATE PARTNER VIOLENCE AMONGST HETEROSEXUAL AND SEXUAL MINORITY UNIVERSITY STUDENTS

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Reproductive coercion (RC) is a relatively new construct that captures a range of behaviors through which one may exert control over a partner by attempting to influence that person's reproductive status (i.e., pregnancy) or their use of contraception and/or birth control. Specific forms of RC include birth control sabotage (e.g., removing condom during sex, blocking access to contraception) and pregnancy pressure (e.g., threatening to hurt a partner who does not agree to become pregnant). The sparse existing literature on RC has focused on RC as an explanation for the link between intimate partner violence (IPV) and unintended pregnancy, which has been identified as an important public health concern. This paper builds upon this existing research by exploring the utility of RC as a predictor of IPV in a cross-sectional sample of $N = 4,715$ college students. Descriptive statistics on the prevalence of RC by will be displayed by gender and sexual orientation. Odds ratios indicate that experiencing RC is strongly linked to IPV victimization amongst university students. Heterosexual women, for example, who reported a history of IPV were over 3 times more likely to endorse being physically assaulted than those who did not report experiencing RC ($OR = 3.44$; 95% CI 2.66, 4.45; $p < .05$). Findings will be framed in terms of their relevance for understanding and addressing the high prevalence of violence amongst intimate partners on college and university campuses. Consideration will also be given to the differential prevalence and impact of RC based on student's self-reported sexual orientation.

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PREDEPLOYMENT YEAR MENTAL HEALTH DIAGNOSES AND TREATMENT IN DEPLOYED ARMY WOMEN

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Background/Significance: Military women are more likely than military men to receive mental health diagnoses (MHDX) and mental health treatment (MHT). Yet, little is known about the prevalence of MHDX and MHT among military women before deployment to Iraq or Afghanistan. This study estimated the prevalence of select MHDX and MHT, and identified characteristics associated with MHT in Army women.

Methods: Guided by the Gelberg-Anderson Behavioral Model for Vulnerable Populations, a retrospective cohort design was used to conduct a secondary analysis of Military Health System data to examine MHDX and MHT during the pre-deployment year (365 days before deployment). All active duty Army women who returned from Iraq or Afghanistan deployments in FY2012 ($N=14,633$). The primary dependent variable was receipt of any MHT in the pre-deployment year. To qualify as MHT, the principal MHDX on the inpatient record or outpatient claim/encounter had to meet the definition of the Major Diagnostic Category (MDC) of 19 (mental diseases and disorders). To qualify as MHDX, a diagnosis had to occur on one inpatient or two outpatient claims and meet Agency for Healthcare Research and Quality Clinical Classifications Software definitions for mood, adjustment, or anxiety disorders (excluding PTSD) or the Ill, Injured, and Wounded definition of PTSD during the pre-deployment year.

Results: The pre-deployment year prevalence estimates were: 26.2% (95% CI: 25.5% – 26.9%) for any select MHDX and 18.1% (95% CI: 17.5% – 18.7%) for any MHT. After controlling for sociodemographic, military, and prior deployment characteristics in multivariate analyses, being Black (AOR: 0.76, 95% CI: 0.68-0.84) and of officer rank (AOR: 0.49, 95% CI: 0.43-0.57) were associated with lower odds of receiving any MHT in the pre-deployment year. Army women who had physical injuries since FY2001 (AOR: 1.58, 95% CI: 1.32-1.90) or any behavioral health treatment in their military medical record before the pre-deployment year (AOR: 3.78, 95% CI: 3.45-4.15) had increased odds of MHT.

Conclusions: In the pre-deployment year, a substantial percentage (26.2%; $n = 3,835$) of Army women had a MHDX and at least one MHT encounter or stay. Additional research is needed to determine if pre-deployment MHDX among Army women reflects vulnerability to future MHDX, or if pre-deployment MHT utilization results in protection from chronic symptoms and problems. Findings emphasize the importance of determining if Army women with pre-deployment MHDX and/or receiving MHT in the pre-deployment year need behavioral health care in-theater. Although the Department of Defense (DoD) has expanded the Deployment Health Assessment Program to reduce non-deployability and promote the early identification and referral of service members for behavior health problems before and after deployment, gender-specific pre-deployment assessment protocols may facilitate the identification and referral of Army women with pre-existing MHDX for in-theater continuity of care to promote resilience throughout the deployment cycle. Improved understanding of these risk and resilience factors will be valuable to DoD's efforts to improve the health of our diverse armed forces and the more effective alignment of accession, retention, and deployment policies.

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C/EBP β TARGETING TO PUTATIVE AMINO ACID RESPONSE ELEMENTS IN GENES REGULATING OVARIAN FUNCTION

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Abstract

Background and Significance: Nutritional status can have a large impact on female fertility. In women, both nutritional deficiencies and excesses can lead to anovulation. In livestock nutritional status influences ovarian follicle and oocyte quality, luteal formation and function, embryo survival, maintenance of pregnancy, and pregnancy outcomes (Wu et al, 2007). Adequate progesterone production by the corpus luteum is critical for early pregnancy. Specific dietary amino acid supplements (e.g., arginine) improve reproduction in farm animals. Amino acid supplementation may affect the early corpus luteum differently than it does when pregnancy is well-established. C/EBP β is a transcription factor shown to regulate many ovarian genes and especially those involved in ovulation and formation of the corpus luteum. The aim of our project is to identify porcine and bovine genes critical to the granulosa to luteal cell transition that exhibit binding of C/EBP β to amino acid response elements (AAREs) in the regulatory regions of their DNA.

Methods: Granulosa cells were isolated from the ovaries of gilts and non-pregnant cows and heifers and cultured in media containing serum for 3-5 days to promote luteinization. Cells were then treated for 6 h in serum-free medium with either vehicle or 8Bromo-cAMP, a cAMP analog shown to induce luteinization genes and increase progesterone production. Some cells were then lysed with Trizol for RNA isolation. Other cells were fixed for Chromatin Immunoprecipitation (ChIP) by cross-linking proteins to DNA with formaldehyde. To detect DNA regions binding C/EBP β in 8Bromo-cAMP-treated samples, ChIP followed by deep sequencing (ChIP-seq) was performed by Active Motif (Carlsbad, CA) using an antibody to C/EBP β . Unprecipitated input DNA was also analyzed for each sample. Peaks representing C/EBP β binding were annotated.

Results & Conclusions: When compared to input DNA, 31,416 peaks in porcine and 33,626 peaks in bovine demonstrated specific C/EBP β binding sites and included the promoter regions for the positive control genes IGF1 and STARD1. Porcine and bovine shared 2966 unique genes with C/EBP β binding sites. The STARD1 gene promoters of porcine and bovine contain the sequence TGATGAAAC, which corresponds to an AARE consensus (TGATGA/CAAT/C) found in other genes that also bind C/EBP β (Brasse-Lagnel et al, 2009). Further analyses of ChIP-seq DNA sequences for the STARD1 AARE revealed 715 and 612 binding sites in porcine and bovine, respectively. The most abundant gene targets had GO functions that were related to enzymes, transcription, and intracellular signaling. Several transfer RNAs had C/EBP β binding STARD1 AAREs in their upstream regions. These studies provide a foundation to further study selected genes that mediate reproductive function and analyze their responsiveness to amino acid manipulation. Parallel studies of gene expression data are in progress.

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Category: **Basic Science**

FINDING ANSWERS FOR LIFE: ASSESSING THE INFORMATION NEEDS OF UNDERSERVED AMERICAN WOMEN WITH A FOCUS ON REPRODUCTIVE HEALTH

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Abstract

Background: In the United States there is still a considerable deficit in the reproductive health of poor women. This deficit manifests in many ways that negatively affect both women and their children. Despite the profound amount of literature detailing both the lack and the consequences of the disparity of reproductive healthcare suffered by low-income women, there exists a gap in the research deciphering the root cause.

Research suggests that a digital divide exists and that women of socioeconomic status are often at a disadvantage by the consequences of this divide. One repercussion of this chasm is a lack of adequate information; particularly of accurate and accessible reproductive health information which has been found to be related to poor reproductive health. This research will employ a quantitative approach by means of adapting a previously validated assessment tool of pregnancy-related information seeking behavior to gauge reproductive health information-seeking in low-income women.

The purpose of this study will be to examine the information-seeking patterns, needs, and barriers among low-income women as they pertain to the pursuit of reproductive health information. In order to determine this the following research questions will guide this study: *Which information sources are trusted by low-income women?*, *What are the self-perceived barriers faced by low-income women in reproductive healthcare information-seeking and how do they influence information-seeking?*, and *Does a high perception of self-risk influence low-income women's information-seeking behavior?*

Methodology: The assessment tool selected for this study is a previously validated survey used to assess information-seeking among pregnant women. This research will be conducted at a health clinic that serves women that have a household income at or below 200 percent of the federal poverty guidelines.

The data analysis will include ordinal regression analysis and Spearman's rank. The variables produced by the survey will be categorical and ordinal. Spearman's rank will be used to determine if there is a relationship between the variables with special attention to the demographic data. Ordinal regression analysis will allow multiple independent variables to be compared to a single dependent variable and conditional probabilities applied to their relationships including multiple explanatory factors or covariates. Information seeking will be used as the dependent variable and compared to the independent variables of information needs, perceived barriers, and perceived risk.

Significance: While there have been many studies on the end effects of a lack of accurate and accessible reproductive health information little research has been conducted to examine the reproductive healthcare information-seeking patterns of women who live in poverty. A more thorough knowledge of the barriers to reproductive healthcare information as experienced by this population will assist public health workers and information professionals in understanding how to reach these women in order to best ameliorate these deficits.

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