

Proposal Title: Depression, perceived stress, and perceived discrimination as predictors of obesity among African American adult males: The Jackson Heart Study

Abbreviated Title: Depression, perceived stress, perceived discrimination, and obesity

Suggested keywords: Depression, Perceived Stress, Perceived Discrimination, Obesity, African Americans, Males

This project has three aims:

Aim 1: To describe the prevalence of depression, perceived stress, perceived discrimination, and obesity among African American men in the Jackson Heart Study.

Aim 2: To examine the independent and joint associations between depression, perceived stress, perceived discrimination, and obesity among African American men in the Jackson Heart Study.

Aim 3: To examine the extent to which depression, perceived stress, and perceived discrimination predict obesity among African American men in the Jackson Heart Study.

Background/Rationale (Include the relevance of this proposal to African Americans and justify the need for the JHS cohort to answer the research question):

June has been designated as Men's Health Week, a special awareness period created by the United States Congress, that is celebrated to raise awareness of issues impacting the health and wellness of men and boys. Even though there are health conditions that only affect men, many of the major health risks that men face, like cardiovascular diseases, can be prevented and treated with early diagnosis, awareness, and the initiation of prevention and intervention strategies (Mayo Foundation for Medical Education and Research, 2016). Published studies have found significant associations between obesity and mental health well-being among African Americans (Carter, Walker, Cutrona, Simons, & Beach, 2016). More African American adults in the U.S. are obese (Centers for Disease Control and Prevention, 2016), and are more likely to experience mental health problems than their Caucasian counterparts (Hudson et al., 2016). African Americans are exposed to stressors relative to race that leads to negative health outcomes within the African American community (Fox, Merwin, & Blank 1995). Perceived stress, evaluation of stressful life experiences (Cohen, 1994), is associated with increased coronary heart disease morbidity and mortality among African Americans (Redmond et al., 2013). Moreover, perceived stressors are likely exacerbated by experiences associated with the culture of discrimination that African Americans experience in southern states such as Mississippi (Faris, 2012).

African American men, who have been historically disenfranchised, reportedly experience greater levels of discrimination than any other ethnic group (Purnell et al., 2012). There is a clear pattern of pervasive discrimination and bias against overweight people in many communities across the US (Puhl & Brownell, 2001). Perceived discrimination, a potential factor contributing to obesity-related comorbidities, is a stressor in the lives of many African Americans (Pascoe and Richman 2009). Higher levels of stress lead to behaviors and conditions that contribute to the development of overweight and obesity (Barrington et al., 2012). Prolonged perceived stressors have been associated with increased prevalence of depression (Wiegner, Hange, Bjorkelund, & Ahlborg, 2015). Depression, one of the most common mental illnesses in the U.S., impacting more than 15 million American adults each year, is an issue that men struggle to talk about. Researchers believe that being overweight or obese increases the risk of suffering from depression (Onyike et al., 2003; European Association for the Study of Obesity, 2017).

Individuals who are depressed may experience, but are not limited to, hopelessness, helplessness, irritability, and restlessness (American Psychiatric Association, 2013). Affecting more than 350 million people today, depression is the leading cause of disability for both men and women (World Health Organization, 2012). Depression has been linked to several chronic diseases, including coronary artery disease, stroke, diabetes, and cancer. Depression is also associated with poor medication and treatment adherence (Grenard et al., 2011). Poor adherence is associated with heart failure (Wu, Moser, Chung, & Lennie, 2002), cardiovascular disease (Heisler, Choi, & Rosen, 2010), and diabetes (Breitscheidel, Stamentis, Dippel, & Schoffski, 2010). Depression is often left untreated among the African American community (Williams et al., 2007). This may be due to a lack of financial resources and access to care, and the stigma related to receiving mental health services (Anthony, Johnson, & Schafer, 2015). Specifically, almost two-thirds of African Americans view depression as a weakness, and believe that religion alone can treat the illness (Anthony et al., 2015).

The JHS, the largest cohort of African Americans, is based in Mississippi, the state that boasts the second highest obesity rate among adults (State of Obesity, 2016). While obesity has been found to be associated with several mental disorders, including depression (Luppino, de Wit, Bouvy, et al., 2010), stress (Razzoli & Bartolomucci, 2016), and perceived discrimination (Stepanikova et al., 2017), there are no published studies investigating the relationship between these mental disorders and obesity among African American men. Poor mental well-being is associated with noncompliance to health regimens and fewer health promotion behaviors (Walsh, Senn, & Carey, 2013). Given that individuals who are obese are at greater risk of health complications, the results of this research have the potential to increase the understanding of these risks in men and raise awareness of the importance of taking steps to manage or eliminate stress, or at least learning to deal with stress appropriately. The purpose of this study is to add to the literature by investigating the relationship among depressive symptomatology, perceived stress, and perceived discrimination and obesity in an African American male population. We hypothesize that depressive symptomatology, perceived stress, and perceived discrimination will each uniquely predict obesity, specifically body mass index (BMI) and waist circumference (WC) in African American men.

Variables:

Depression: measured by Center for Epidemiologic Studies Depression Scale (CES-D) of 16 or higher

Perceived Stress: measured by Weekly Stress Inventory (WSI), Negative Life Events (NLE) and Global Perceived Stress Scale (STS)

Perceived Discrimination: measured by Lifetime Discrimination (major discrimination experiences) and Everyday Discrimination (relatively minor experiences)

Obesity: measured by BMI and WC

Type of variables:

Continuous

Covariates:

Demographics: Age, family income, education attainment, occupational status, relationship status

Health behaviors: Alcohol history

Research Hypotheses:

- H1. 1. Depression is positively associated with BMI and WC.
- H1. 2. Perceived stress is positively associated with BMI and WC.
- H1. 3. Perceived discrimination is positively associated with BMI and WC.
- H2. 1. Depression is a positive predictor of BMI and WC.
- H2. 2. Perceived stress is a positive predictor of BMI and WC.
- H2. 3. Perceived discrimination is a positive predictor of BMI and WC.

Brief Statistical Analysis Plan and Methods: (Including power calculations, if necessary)

Bivariate correlation analyses will be conducted to identify significant relationships among variables and to detect any multicollinearities. Scatterplots and histograms will be created to screen for bivariate and univariate abnormalities. Descriptive statistics (i.e., means, standard deviations, skewness, and kurtosis) of obesity, depression, perceived stress, and perceived discrimination will be calculated. Internal consistency will be determined for each factor using Cronbach's alpha. A hierarchical multiple regression analysis will be performed to examine if depression, perceived stress, and perceived discrimination are significant predictors of obesity. Predictor variables will be entered in each step of the hierarchical regression analysis in an order based on the model. The variables will be entered as follows: Step 1, covariates (i.e., demographic characteristics); Step 2, depression; Step 3, perceived stress; Step 4, perceived discrimination. Analyses will be performed using IBM SPSS Statistics, version 23.0. A priori power analyses using the statistical G*Power 3 focusing on R^2 increase indicate that a sample size of 119 is needed. This is assuming an alpha of .05, a medium effect size ($f^2 = .15$), and 3 predictors. JHS's sample size of males exceeds this requirement ($n=1,909$).

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