

Racial and Gender Discrimination Among Black Women: An Examination of Health  
Locus of Control as a Moderator of Maladaptive Eating Behaviors

A Dissertation Presented to the  
Faculty of the College of Education  
University of Houston

In Partial Fulfillment  
Of the Requirements for the Degree

Doctor of Philosophy

by:

Cashuna T. Huddleston

December 2015

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## **Abstract**

Many factors may contribute to the higher prevalence of overweight and obesity for Black women. Associations between discrimination and health behaviors have been identified (Laitinen, Ek, & Sovio, 2002; Oliver & Wardle, 1999). Stress as a result of racial and gender discrimination may lead to changes in health behaviors such as maladaptive eating habits as a coping response; these behaviors may ultimately have an influence on Black women's health. In addition, major substantive questions remain about the conditions that moderate the effects of discrimination on health behaviors among Black women. Thus, this study examined two questions: (a) Is there a relationship between discrimination (i.e., racial and gender) and dietary behavior (e.g., low-fat eating and snacking on sweets)? and (b) Is the relationship between discrimination and dietary behaviors moderated by health locus of control orientation (e.g., internal and matter of chance)? Two hundred and twenty-seven participants were recruited and data were collected online. It was expected that discrimination and health locus of control would each contribute significantly to dietary behaviors in this sample of women. Moderated regressions were used to test the study hypotheses. Bivariate correlations results revealed that internal HLOC was positively associated with low-fat eating behavior; chance HLOC was positively associated with snacking on sweets eating behavior; and racial discrimination was positively associated with snacking on sweets eating behaviors. Results also indicated that internal HLOC and chance HLOC served as moderators in the relationship between racial and gender discrimination and snacking on sweets eating behaviors but not for low-fat eating behaviors. Implications for future research are discussed.

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## **Chapter I: INTRODUCTION**

Obesity, defined as a body mass index (BMI) of  $>30 \text{ kg/m}^2$ , and overweight, defined as BMI of  $25\text{-}29.9 \text{ kg/m}^2$ , continue to be serious problems in the United States (U.S.). According to the Centers for Disease Control and Prevention [(CDC) 2011, 2013], almost one-third of the U.S. adult population is either overweight or obese, placing them at an increased risk for more than 20 different diseases (Robert Wood Johnson Foundation, 2011). Moreover, the proportion of U.S. adults who are overweight or obese is expected to increase (Ogden et al., 2006), and the public health impact of obesity has exceeded that of smoking and heavy alcohol use (Strum, Ringle, & Andreyeva, 2004). Several studies have linked obesity to an increased risk of chronic disease, poor quality of life, and functional disability (Borders, Rohrer, & Cardarelli, 2006; Okosum, Choi, Matamoros, & Dever, 2001), and these obesity-related conditions account for 300,000 deaths annually in the U.S. (Allison, Fontaine, Manson, Stevens, & Vanitalie, 1999; CDC, 2011). Additionally, there is an undeniable link between the rising rates of obesity and medical spending (Finkelstein, Trogon, Cohen, & Dietz, 2009). The economic and personal health costs of being overweight or obese are enormous (CDC, 2011). Given the health risks, medical complications, and financial burden associated with overweight and obesity, research examining predictors of overweight and obesity is warranted.

Obesity, as a health condition, can be attributed to a myriad of genetic and environmental factors, such as diet and stress (Popkin, Duffey, & Gordon-Larsen, 2005). Differences in overweight and obesity are noted across age groups, race, ethnicity, and socioeconomic status. In the U.S., women of low socioeconomic status and racial minority populations are more likely to be overweight or obese (Wang and Beydoun,



2007). Because obesity is not uniformly spread across the population, some sub-groups such as Black women experience obesity at unequally higher rates (Davin & Taylor, 2009; Robert Wood Johnson Foundation, 2011; Shah, Adams-Huet, Elston, Hubbard, & Carson, 2010). The major determinants driving obesity in this group of women are uniquely complex, but may involve cognitive processes, external locus of control, stress, discrimination, dietary behaviors, and family-work culture and practices (Kayrooz, Mosy, Yanek, & Becker, 1998; Lucan, Barg, Karasz, Palmer, & Long, 2012; Shah et al., 2010; Ard et al., 2008). To clarify the contribution of these underlying factors to the disparate rates of obesity among Black women, more research into these areas is needed.

### **Status of Obesity and Body Mass Index among Black Women**

Obesity prevalence data for Black women are especially alarming. Studies examining trends of obesity in the U.S. have found that 66% of Black women are overweight or obese (Blixen, Singh, Xu, Thacker, & Mascha, 2006) compared to 32% of non-Hispanic White women and 41% of Hispanic women (Blixen et al., 2006; Johnson & Wesley, 2012). Likewise, studies exploring obesity and weight change have found that race is a predictor of both, with Black women gaining more weight than non-Hispanic White women (Williamson, 1993; Johnson & Wesley, 2012; Schmiegelow et al., 2015) across most socioeconomic and age groups (Walcott-McQuigg, 1995). Nearly 15% of Black women are in the “extremely obese” weight range, characterized by a BMI greater than  $40 \text{ kg/m}^2$ , equivalent to about 100 pounds of excess weight (Kumanyika et al., 2007). Black women also gain a greater proportion of weight from childhood to adulthood and outpace other groups in terms of weight gain over time (MeInyk & Weinstein, 1994). This disparity contributes to one-fourth of Black females aged 6 to 19

years being overweight or obese. Additionally, fewer than 20% of Black women, compared with 33% of Black men, have body weights in the healthy range (Kumanyika et al., 2007). Thus, these data demonstrate that the problem of obesity among Black women is not only one of disparity among ethnic groups but also of sex disproportionality within the Black community.

While the BMI indicator has been universally recognized as the cornerstone of the current classification system for overweight and obesity, it has limitations and only serves as a surrogate measure for true body fat content, especially for persons of color (Prentice & Jebb, 2001). Opponents of using BMI contend that a major drawback in using BMI values as a measure for describing Black women's weight and health status is that after adjusting the body weight for stature, this measure assumes all individuals have the same relative fatness regardless of their age, sex, or ethnicity and ignores different densities of fat, bone, and muscle (Gallagher et al., 1996). This shortcoming of the BMI disregards how many Black people tend to carry a proportionately higher BMI and lower body fat proportion, which is reversely true for White individuals (Prentice & Jebb, 2001; Evans, Rowe, Racette, Ross & McAuley, 2006). Due to this difference, it has been recognized that BMI cut-off values may be inappropriate for many non-White ethnic groups and the literature base has questioned whether Blacks have been unfairly classified as overweight or obese. Many researchers contend that it is the actual excess adipose tissue (i.e., body fat) that is the cause of the comorbid conditions among Black women, not the excess weight quantified by BMI calculations (Prentice & Jebb, 2001; Rahman & Berenson, 2010). In fact, Fernandez and colleagues (2003) determined that

the relation between BMI and body fat percentages differed by body size among races and that different BMI cut-points for obesity should be used for Black and White women.

Nonetheless, BMI has been shown to be a relatively reliable indicator of body fat percentage and associated health risks for most people, and calculating BMI is an easier and faster procedure than other alternatives (e.g., waist circumference, waist-to-hip ratio or body fat caliper measurements; Cole & Lobstein, 2012). Thus, the current BMI-based definition of overweight and obesity, which is employed in essentially all weight-related studies, is the classification referred to in this study. Furthermore, despite the relatedness of BMI to Black women's overweight and obese profiles being called into question, Black women continue to be overrepresented among those who struggle with obesity and obesity-related illnesses (Johnson & Wesley, 2012).

**Predictors of overweight and obesity among Black women.** Overweight and obesity, usually measured via BMI, among Black women may be the result of a complex web of interconnected social, physiological, and behavioral factors that influences the weight differentials and health disparities between Black women and other groups of women, as well as between Black women and Black men (Kuczmarski, Flegal, Campbell, & Johnson, 1994; Cozier, Wise, Palmer, & Rosenberg, 2009; Walcott-McQuigg, 1995). For example, accumulating evidence has documented that discrimination is linked to adverse health behaviors and contributes to poor health status among Black women (Forsyth, Schoenthaler, Ogedegbe, & Ravenell, 2014). Indeed, previous research has shown that discrimination among Black women is strongly associated with increased blood pressure and fasting glucose (Tull, Cort, Gwebu, & Gwebu, 2007), diabetes self-management and control (Wagner et al., 2011), lower

medication adherence (Forsyth et al., 2014), weight gain (Cozier et al., 2009), unhealthy diets and emotional eating (Manuel, 2004; Johnson, Risica, Gans, Kirtania, & Kumanyika, 2012), and abdominal fat (Tull et al., 1999). Although these studies highlight the deleterious effects of discrimination on physical health and health behaviors among Black women, the study of discrimination as it relates to health is still in its infancy (Hahm, Ozonoff, Gaumond, & Sue, 2010). In addition, health locus of control may contribute to racial disparities in physical health among Black women. Social and economic constraints and/or negative environmental messages likely influence locus of control (Shaw & Krause, 2001) and these accumulated disadvantages may cause them to be susceptible to risk factors that increase their vulnerability to health disparities (Zahodne et al., 2015). Generally, of the currently identified determinants of overweight and obesity, co-occurring traits, and characteristics of individuals, one that has not, to date, garnered quite as much attention is an individual's perceived health locus of control (Neymotin & Nemzer, 2014). Health locus of control is an important characteristic in relation to overweight and obesity, by definition; it indicates whether an individual believes that his or her environment and choices are under his or her control. Thus, in addition to actual physical cues of hunger or satiation, the ability to interpret those cues appropriately in a given social setting will help to determine how obesity develops and persists (Neymotin & Nemzer, 2014).

Considering the above points, there are three major gaps in the aforementioned studies that focused on the health effects of discrimination among Black women. The first gap in the literature is that most of the studies only examine a single indicator of discrimination and essentially ignore the role of gender in the relationship between

discrimination and health among Black women. People with membership in multiple oppressed groups, such as Black women, may be at increased risk for negative health behaviors and outcomes associated with discrimination because they may face more incidents of discrimination than people with membership in a single oppressed group (King, 2005). Reid and Comas-Diaz (1990) suggested that researchers have traditionally examined a single indicator at a time (e.g., ethnicity or gender) in an attempt to obtain clearly interpretable results. Yet, for individuals whose identities are shaped by simultaneous membership in two (or more) oppressed groups, the neat separation of race and gender is a false dichotomy (King, 2005). The small body of published empirical work examining both race and gender discrimination<sup>1</sup> among women of color suggests that experiences of both racial and gender discrimination are important in understanding Black women's lives and their health (Krieger, 1990; Moradi & Subich, 2003; King, 2005).

Second, few studies have investigated specific dietary behaviors of Black women. While there may be many causes for the poorer health status of Black women, nutrition is likely to be a contributing factor (Androgue & Wesson, 1996; Hargreaves, Schlundt, & Buchowski, 2002). Excessive consumption of foods high in fat, sodium, calories and cholesterol, along with too little consumption of fruits, vegetables, and high fiber foods, may be contributing to excess risk of chronic disease in this population (Lynch, Homes,

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<sup>1</sup> For the purposes of this study, the term *gender discrimination*, instead of *sex discrimination*, will be used, because although this study is not necessarily about prescribed, societal-based gender roles it is advantageous to remain consistent within the document and aligned with publications being cited.

Keim, & Koneman, 2012; Sutherland, 2013). To the extent that nutritional factors are one of the contributing factors to the excess risk of obesity in Black women, it is important to study the food selections of Black women and to determine how these eating patterns are contributing to chronic diseases (Hargreaves et al., 2002). In addition, while there has been extant work examining the link between discrimination and health behavior, it has largely focused on substance use and exercise (Brodish et al., 2011). By not including health behaviors related to diet, we may be missing an important part of how discrimination impacts health, especially given the high rates of obesity among racial/ethnic minority individuals (Baltrus, Lynch, Everson-Rose, Raghunathan, & Kaplan, 2005; Sanchez-Vaznaugh, Kawachi, Subramanian, Sanchez, & Acevedo-Garcia, 2008; Wang & Beydoun, 2007; Brodish et al., 2011).

A third limitation of previous work is the absence of research considering the role of health locus of control, which is a person's belief about their health along three dimensions (e.g., internal, chance, and powerful others), in moderating the link between the stress from discrimination and eating behaviors. The personality characteristic of locus of control beliefs in this respect are relevant because in studying the different responses that individuals have to stressful experiences, the meaning that individuals place on their stressful experience is related closely to their functioning and subsequent health behaviors (Roddenberry & Renk, 2010; Schulz & Heckhausen, 1999). Numerous studies have investigated the relationship of locus of control to nutrition-related and other health-related behaviors (Abusabha & Achterberg, 1997). Those with internal loci of control are shown to take responsibility for their own actions and to engage more readily in health promoting behaviors (Abusabha & Achterberg, 1997). For example, internal

locus of control has been associated positively with the practice of breast self-examination (Quadrel & Lau, 1989), treatment compliance for patients with hypertension (Lewis, Morisky, & Flynn, 1978), and condom usage (Kelly et al., 1990).

Research examining locus of control among Black women specifically has demonstrated links between chance and powerful others health locus of control and beliefs about breast cancer (Barroso et al., 2000) and overall health status (Pieterse & Carter, 2010). Conversely, Baker and colleagues (2008) indicated that Black women who held the simultaneous belief that they had control over their health and that others do not control their health were associated with greater pain intensity. This finding suggested that the women in this sample may have blamed themselves for their inability to overcome health conditions and succumbed to their illness. Clearly, results have been inconsistent when examining the influence of locus of control on health among Black women. However, as locus of control relates to experiences of discrimination, research has examined how discrimination affects sense of control in Blacks (Broman, Mavaddat, & Hsu, 2000). In particular, this area of investigation has indicated that an increased perception of control may serve as a buffer against the negative impact of discrimination (Scott & House, 2005) and positive health behaviors (Abusabha & Achterberg, 1997). To date, the moderating role of locus of control in the relationship between discrimination and eating behaviors in a sample of Black women has not yet been examined.

### **Purpose and Hypotheses**

Black women have been described as one of the most vulnerable groups in relation to health status (Eliason, 1999), a state that may be attributable to such social factors as racial and gender oppression and the intersection of the two (Kwate,

Valdimarsdottier, Guevarra, & Bovbjerg, 2003). The extent to which the combined effect of these types of stressors might influence Black women's health behaviors has not been clearly established in the literature.

Due to the absence of studies concerning racial and gender discrimination and eating behaviors in Black women, this study explored these relationships and associated psychological processes among this subgroup of minority women. As such, this study examined the relationship between racial and gender discrimination and dietary behaviors (i.e., high-fat eating and snacking on sweets). The second goal of the study was to examine whether the relationship between racial and gender discrimination and dietary behaviors was moderated by health locus of control orientation (i.e., internal and matter of chance), as an individual difference variable. The following hypotheses were made:

1. Racial discrimination will be negatively associated with low-fat eating behaviors and positively associated with snacking on sweets eating behaviors;
2. Gender discrimination will be negatively associated with low-fat eating behaviors and positively associated with snacking on sweets eating behaviors;
3. Internal HLOC will be positively associated with low-fat eating behaviors and negatively associated with snacking on sweets eating behaviors;
4. Chance HLOC will be negatively associated with low-fat eating behaviors and positively associated with snacking on sweets eating behaviors; and



5. Internal HLOC and chance HLOC will moderate the relationship between racial and gender discrimination and low-fat eating behaviors and snacking on sweets eating behaviors.

## **Chapter II: LITERATURE REVIEW**

Of the 15 million Black women in the U.S. above the age of 18, statistics suggest that regardless of socioeconomic status, Black women are overrepresented among people who get the sickest and die the earliest (Robert Wood Johnson Foundation, 2011). Research has shown that overweight and obesity are the leading modifiable risk factors responsible for the decline of health in Black women (Blanchard, 2009). Recent national data show that 82.0% of Black women are overweight or obese compared to 63.2% of White women (Ogden, Carroll, Kit, & Flegal, 2014). The data also shows a trend that reflects White and Hispanic women who are younger with higher socioeconomic status and more education are somewhat protected from rising obesity rates, but this does not hold true for Black women (Ogden et al., 2014). In fact, obesity rates are increasing fastest among Black women at middle incomes (Chang & Lauderdale, 2005) with the average age of these women being 38 (Friday, 2012). Furthermore, over half of Black women are obese versus 37.1% of Black men (Ogden et al., 2014), thus illustrating that the health condition of overweight and obesity among Black women is not only a racial issue but a gender problem within the Black community as well.

Recent research has illustrated that stress caused by disadvantaged social status may be related to overweight and obesity (Gee, Ro, Gavin, & Takeuchi, 2008). For Black women, it is reasonable to propose that they are targets of a unique type of discrimination, due to their position at the intersection of Black race and female gender, which may subject them to greater instances of gender and racial discrimination (King, 2005). Self-reported discrimination is related to several stress- and obesity-related outcomes including high blood pressure (Krieger & Sidney, 1996), depression and

anxiety (Kessler, Michelson, & Williams, 1999), sleep problems (Steffen & Bowden, 2006), and coronary calcification (Lewis et al., 2006). Individuals may also use unhealthy food to cope with discrimination (Walcott-McQuigg, 1995; Dallman et al., 2004;) and maladaptive dietary behavior can contribute to overweight and obesity (Royal & Kurtz, 2010; Brown, Geiselman, & Broussard, 2010).

In accordance with the stress and coping framework (Lazarus & Folkman, 1984; Clark, Anderson, Clark, & Williams, 1999), discrimination may act as a stressor that negatively impacts psychological and physical health by encouraging the adoption of harmful coping responses such as overeating (Borrell et al., 2010; Womble et al., 2001), thus increasing the risk for overweight and obesity over time (Shelton et al., 2009). The stress of discrimination may also activate the hypothalamic-pituitary-adrenal axis, resulting in abnormally high or imbalanced insulin and glucocorticoid levels (e.g., cortisol) that stimulate the appetite and promote body fat deposition (Bjorntorp, 2001; McEwen, 2000). The literature examining the relationship between discrimination and health is extant; however, this research does not provide an explanation of the process by which members of disadvantaged groups perceive and respond to the stress responses triggered by discrimination (King, 2005) and how this may serve as a risk factor for health outcomes, such as obesity. In addition, there is large individual variation in the effects of stress on well-being (King, 2005) and several important mediating and moderating variables have been examined to explain this variation, including personal control (Folkman, 1984).

There is an extensive body of research linking sense of control with physical health (Rodin, 1986; Lachman & Weaver, 1998). Although chronic stress contributes to

feelings of loss of control (Bahr, 2007), believing that one has control over outcomes may be adaptive and is associated with better reported health, faster recovery from illness, and greater longevity (Lachman, 1986; Rodin, Timko, & Harris, 1985; Lachman & Weaver, 1998). There is reason to believe that it is beneficial for those who are socially disadvantaged, such as Black women, to believe in themselves and in their ability to control aspects of their lives (Lachman & Weaver, 1998). Therefore, one goal of this study was to examine whether control beliefs play a role in the relationship between discrimination (i.e., racial and gender) and health behaviors (i.e., eating) among Black women.

The following literature review will explore unhealthy dietary patterns as a risk factor for obesity and its impact among Black women, paying particular attention to mechanisms such as racial and gender discrimination as contributing factors to the disparate and disproportionate rates of obesity among Black women. While Black women may not be able to change the environments in which the stressors exist, they do have control over how they cope and respond. Although many factors influence dietary behaviors, individual belief systems can strongly influence feelings of well-being, perceptions of health, and health behaviors (Swinney, 2002). Thus, locus of control will be examined as a moderator that may help to distinguish how discrimination is associated with maladaptive eating behaviors among Black women.

### **Diet and Eating**

Although the cause of obesity is undoubtedly multifactorial, much attention has been paid to possible effects of dietary behaviors (Flegal et al., 2012). The United States Department of Agriculture (USDA, 2010) and the Department of Health and Human

Services (DHHS, 2010) jointly issued the Dietary Guidelines for Americans (USDA, 2010; DHHS, 2010). Based on these guidelines, individuals are reminded to make healthy food choices consisting of: fruits (1.5 cups/day), vegetables (2.5 cups/day), whole grains (6 ounces/day), low-fat dairy (3 cups/day), and lean meats (5 ounces/day; USDA, 2010; DHHS, 2010). Researchers have detailed a number of nutritional factors associated with lowered risk of overweight, obesity and other chronic diseases, including: reduced consumption of dietary fat, increased consumption of whole grains, increased consumption of fruits and vegetables, reduced consumption of fried foods and sweets, and increased consumption of dairy products (Bahr, 2007; Flegal et al., 2012).

Consumption of dietary patterns consistent with the recommended food groups has been associated with a lower incidence of cancer (Harnack, Nicodemus, Jacobs, & Folsom, 2002, Jansen et al., 2004), heart disease (Millen et al., 2004), and an overall reduction in mortality (Kant, Graubard, & Schatzkin, 2004). In addition, nutritional quality has a well-established, strong, and direct relationship to obesity (Bahr, 2007). As Blocker (1994) observed, “good nutrition is crucial to the maintenance of health, and dietary factors contribute substantially to preventable chronic illness and premature death” (p. 267). Despite the potential benefits, adherence to recommended dietary guidelines is extremely low (Krebs-Smith, Guenther, Subar, Kirkpatrick, & Dodd, 2010). Nationally, 80-90% of individuals fail to consume the recommended amount for each food group (Krebs-Smith et al., 2010). The specific dietary practices associated with reduced risk of chronic diseases have been demonstrated repeatedly and are rapidly becoming topics of common knowledge, although not necessarily common practice (Bahr, 2007). There is general agreement among medical and health researchers that

increased consumption of a diet low in sugar intake and saturated fat and high in fruits and vegetables substantially reduces the risk of many of the most common chronic diseases (Bahr, 2007; Brown et al., 2010; Schiffman, Graham, Sattely-Miller, & Peterson-Dancy, 2000).

Furthermore, epidemiological evidence suggests that a high-fat diet and sugar-sweetened foods and beverages promote the development of obesity and that there is a direct relationship between the amount of dietary fat and the degree of obesity (Golay & Bobbioni, 1997; Astrup, 2005). High-fat diets and sugary foods are particularly harmful because they induce greater food intake and weight gain due to low satiety and high caloric density. Some authors have reported that the most important variable influencing meal size is not the level of hunger but the nutrient content of the range of foods consumed (Golay & Bobbioni, 1997). The importance of this relationship has been shown in Black females. Studies have shown that Black women are more likely than others to consume diets high in fat and high in cholesterol, which increases their susceptibility to overweight and obesity (James, 2009). Other research revealed Black college women appear less inclined than White college women to read food labels, consider preservatives, eat three meals a day, and include whole grains, raw vegetables, and fruits in their diets (Brown et al., 2010). Given the fact that research has solidified the extent that nutritional factors are contributing to the excess risk of overweight and obesity in Black women, it is important to identify the contexts in which food is selected and how these contexts influence the intake of food that is high in fat and sugar in this high-risk group (Hargreaves et al., 2002). Thus, the current study will focus on Black women's dietary behaviors focusing particularly on consumption of fat and sugar.

**Dietary behaviors of Black women.** Black women engage in many habitual food intake patterns that place them at a higher risk for being overweight (Hargreaves et al., 2002). For Black women, certain foods may be symbolic of traditions, bonding, and a sense of family. Studies have suggested that following recommendations for dietary practices such as eating a diet high in fiber and low in saturated fat and salt may be difficult for Black women as these recommendations conflict with African American cultural ideas for taste and preferences (Hargreaves et al., 2002).

Airhihenbuwa and colleagues (1996) have pointed out that adoption of low fat, high fiber diets is contrary to the usual African American eating habits and therefore not easy to do. They found that not only did the issues of belongingness and status play a part in eating patterns but also cultural attitudes about where and with whom food is eaten emerged as being equivalent in importance to attitudes about specific foods (Airhihenbuwa et al., 1996). However, beyond food preferences and traditional food preparation, Black women may not maintain a diet that meets their daily nutritional needs because of stressful experiences related to being disproportionately impacted by social problems such as the stressful experiences associated with discrimination, which can influence their dietary behavior (Jones, Tucker, & Herman, 2009; Manuel, 2004).

***Dietary behaviors and stress among Black women.*** Psychological stress has been linked to eating behavior among Black women in previous research (Economos, Hildebrandt, & Hyatt, 2008; Manzoni et al., 2009; George, Milani, Hanss-Nuss, & Freeland-Graves, 2005; Jones et al., 2009; Walcott-McQuigg, 1995; Sims et al., 2008) and has been shown to lead to increased food intake, intake of sweet foods, emotional eating, haphazard meal planning, and poor appetite regulation (Sims et al., 2008; Torres

& Nowson, 2007). Periods of psychological stress have also been associated with the selection of high-fat foods over healthier low-fat items (Zellner et al., 2006; Mwendwa et al., 2011). In a 2005 study of triethnic, low-income women, stress, along with several other psychosocial factors, was associated with a less healthy diet (George et al., 2005). Black women, in particular, report high levels of psychological stress even after controlling for socioeconomic factors (Turner & Avison, 2003; Schulz et al., 2006; Moore-Greene, Gross, Silver, & Perrino, 2012; Hatch & Dohrenwend, 2007) and experience excess morbidity and mortality related to many diseases with diet-related risk factors such as overweight and obesity (Geronimus, Bound, & Colen, 2011; Desantis, Naishadham, & Jemal, 2013).

Two chronic sources of stress that specifically impact Black women are racial and gender discrimination (Shelton et al., 2009; Brondolo et al., 2008). Racial and gender discrimination have been identified as unique psychological stressors for Black women and these chronic situations are less likely to go away on their own (Clark et al., 1999; Szymanski & Stewart, 2010). These stressors have been linked to poor health outcomes and have been found to increase unhealthy food intake, blood pressure, and risk for cardiovascular disease (Harrell, Hally, & Taliaferro, 2003; Brondolo et al., 2008). An assumption can be made that, similar to the stress-response mechanism seen with other types of stressors, racial and gender discrimination may follow the same pathway, where inefficient coping styles also elicit a heightened stress response that leads to poor mental and physical health outcomes (Mwendwa et al., 2011). Over time many Black women may develop maladaptive responses, such as unhealthy eating to cope with these stressful situations (Thomas, Witherspoon, & Speight, 2004).



Beliefs about themselves manifested through experiences of oppression, disenfranchisement, and limited resources may predict eating behavior more consistently when understanding how the overall effect of poor food choice is potentially influenced by social structural experiences such as those associated with race and gender. Discrimination derived from these problems has been linked to unhealthy behaviors (e.g., smoking, medication adherence, alcohol consumption), weight gain, and obesity among Black women (Artinian et al., 2006; Jones et al., 2009; Manuel, 2004; Forsyth et al., 2014). The experiences of Black women cannot be explained without an understanding of how the intersection of race and gender impedes necessary resources and solutions for managing experiences of discrimination and their choice to engage in health-promoting behaviors that contribute to poor health outcomes (Thomas & Gonzalez-Prendes, 2009).

### **Intersectionality and Health**

The intersectionality approach was developed in response to the observation that theories of gender and racial inequality had focused almost exclusively on the viewpoints and experiences of White women and Black men, respectively (hooks, 1981; Hull, Bell-Scott, & Smith, 1982). Intersectionality is a theory of knowledge that strives to elucidate and interpret multiple and intersecting systems of oppression and privilege. It seeks to disrupt linear thinking that prioritizes any one category of social identity (Hankivsky & Christoffersen, 2008). This theory has been well developed over the past several decades, most notably by Black feminist scholars such as Crenshaw (1989), hooks (1990), Collins (1990, 2004) and Calliste and Sefa Dei (2000). The term was first introduced by Crenshaw as a way to bring forward the absence of Black women's experiences in both feminist and anti-racist discourse, where analyses of the intersections of racial- and

gender-based experiences were consistently absent (McGibbon & McPherson, 2011). Contrary to articulating gender and race as distinct social categories, intersectionality postulates that these systems of oppression are mutually constituted and work together to produce inequality (Cole, 2009; Collins, 1990; Crenshaw, 1991; Schulz & Mullings, 2006). Intersectionality strives to understand what is created and experienced at the intersection of oppressions on the basis that it is precisely at the intersection that a completely new status, which is more than simply the sum of its individual parts, is formed (Jackson, 2003; Hankivsky & Christoffersen, 2008). As such, analyses that focus on gender or race independently are insufficient because these social positions are experienced simultaneously. Intersectionality is extending beyond its emergent theoretical roots and is now being applied to multiple areas of research, policy, and health determinants research. Intersectionality is critical to public health because it embraces rather than avoids the complexities that are essential to understanding social inequities, which in turn manifest in health inequities (Bowleg, Teti, Malebranche, & Tschann, 2013). Despite this, intersectionality remains largely uninvestigated (Hankivsky & Christoffersen, 2008) and little work has considered how these categories of identity, difference, and disadvantage are jointly associated (Cole, 2009) and are risk factors that may have an impact on Black women's ability to engage in health-promoting behaviors.

Intersectionality as an approach to framing the unique experiences of Black women has been limited in the health inequalities literature (Rosenthal & Lobel, 2011). This limitation is most notable in health research, particularly in examining how Black women's health trajectories are shaped simultaneously by experiences relative to race and gender (Collins, 2000). While research is lacking in this area, a few studies have

elucidated the unique experiences of Black women in terms of the intersection of gender and race.

First, Moradi and Subich (2003) sought to examine the effects of racism and sexism on the psychological functioning of Black women. Women were surveyed to determine whether racism and sexism contributed more to the variance in psychological symptoms than the unique effect of each independently. They found that racism and sexism were strongly correlated to each other and that racism and sexism have an additive or multiplicative effect on psychological functioning.

Second, Jones and Shorter-Gooden (2003) conducted a large national study of Black women, the purpose of which was to understand qualitatively how Black women experience racism and sexism simultaneously. Women described dealing with pervasive stereotypes, including the expectation to placate and serve others, the inferiority of Black women, and sexual promiscuity. Women also reported that most of the discrimination they experienced occurred in the workplace. In addition, women reported being discriminated against by store employees and being mistreated by law enforcement. It should be noted that the women found it difficult to distinguish whether discrimination occurred due to race, sex, or a combination of the two.

Finally, King (2005) examined cognitive attributions of Black women to determine the relationship between acts of discrimination and stress. These women were asked to determine whether the discrimination they faced was seen as a result of ethnic, gender, or “ethgender” discrimination. King defined “ethgender” as the unique intersection of the statuses of race and gender. King noted that stress was not experienced when acts were perceived as only sexist, possibly as the women did not perceive sexist

experiences as separate from racism (King, 2005). King concluded that the experiences of sexism may be so intertwined with the experience of racism that it is impossible or irrelevant to separate sexism from racism. This study suggested that both racial and gender discrimination are experienced concomitantly and that stress is associated with this unique experience.

As a whole, these studies highlight the relevance of an intersectional approach because it promotes an in-depth understanding of the domains of risk that pose the greatest threat for individuals in unique positions of disadvantage, such as at the intersection of gender and race (Perry, Harp, & Oser, 2013). This type of approach also permits an examination of the various ways that stressors rooted in systems of racial and gender inequality directly impact members of minority groups (Perry et al., 2013). Recent research suggests that conceptualizations of stress that include social stressors, such as racial and gender discrimination, provide a more powerful explanation for racial/ethnic and gender health disparities, especially among Black women (Turner & Avison, 2003; Woods- Giscombe, 2010; Woods-Giscombe & Lobel, 2008).

### **Discrimination as a Stressor**

The research presented here draws upon a conceptual model of the stress process that identifies the contributions of multiple factors to health behaviors (Schulz et al., 2006). This model is a comprehensive framework that focuses attention on stressors, conceptualized by Lazarus and Folkman (1984) as an incident in which the “relationship between the individual and the environment is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being” (p.19). The experience of stressors may produce short-term responses, which may manifest as

behavioral (e.g., unhealthy diet), physiological (e.g., elevated blood pressure), or psychological (e.g., tenseness) outcomes (Schulz et al., 2006). These short-term responses, if repeated over time, may lead to irreversible negative health effects (Schulz et al., 2006).

Sources of stress may be either discrete adverse events (e.g., death of a spouse) or chronic, ongoing life strains, such as experiences with discrimination (Pearlin, Lieberman, Menaghan, & Mullan, 1981; Williams & Mohammed, 2009).

Conceptualizing discrimination as a stressor may elucidate the relationship between discrimination and negative health behaviors and outcomes, as other authors have suggested (Romero & Roberts, 2003; Thompson, Anderson, & Bakeman, 2000; King, 2005). Although most stressful experiences do not increase vulnerability to illness, stressors that are uncontrollable and unpredictable are particularly harmful to health, and these characteristics are common to discrimination experiences (Pascoe & Richman, 2009).

The mechanism by which discrimination may contribute to psychological stress and obesity is two-fold and has shown to be directly channeled through hypothalamic-pituitary-adrenal (HPA) axis disruption or via behavioral and physiological pathways (Pham, Ommerborn, Hickson, Taylor, & Clark, 2014; Lewis, Cogburn, & Williams, 2015; Pascoe & Richman, 2009). When an individual experiences stress, the HPA axis response begins with the release of corticotropin-releasing factor (CRF) from the hypothalamus, stimulating the release of adrenocorticotrophic hormone (ACTH) from the pituitary gland. ACTH travels through the bloodstream to stimulate the release of cortisol from the adrenal cortex. Via a negative feedback loop, cortisol then acts on the

hypothalamus and pituitary gland to shut down the release of both CRF and ACTH (Jackson, Knight, & Rafferty, 2010). During chronic stress, the negative feedback loop furthers the release of CRF, which breaks down as glucocorticoid receptors and are downregulated as the release of CRF continues. Continued release of CRF is associated with feelings of anxiety and engaging in negative health behaviors, which ultimately aids in the “shutdown” of the stress response (Dallman et al., 2003; Jackson et al., 2010). While this cascade of events comprising HPA activation is typically adaptive, when stress persists and glucocorticoid release is chronic, the physiological changes may become maladaptive and cause permanent harm to the system (Bollini, Walker, Hamann, & Kestler, 2004). This overexposure to the stress hormone, called allostatic load, can cause wear and tear on important body systems and contribute to the development or progression of a broad range of clinical and preclinical processes, including cardiovascular disease, obesity, diabetes, and accelerated aging (Geronimus et al., 2010).

In addition to triggering sustained activation of stress responses, discrimination experiences may affect health behaviorally by decreasing an individual’s self-control resources, potentially increasing participation in unhealthy behaviors or decreasing participation in healthy behaviors (Pascoe & Richman, 2009). For example, research has shown that individuals whose stigma was made salient, thus highlighting the potential for discrimination, had more impaired self-control than those whose stigma was not made salient (Inzlicht, McKay, & Aronson, 2006). The implication, when applied to the health domain, is that dealing with experiences of discrimination may leave individuals with less energy or resources for making healthy behavior choices (Pascoe & Richman, 2009). Research examining these pathways suggests that discrimination is related to health

behaviors (e.g., eating) that have clear links to disease outcomes (e.g., obesity). This study proposes that the pathway by which discrimination influences health is that the stress of discrimination leads to the use of negative health behaviors as coping strategies and depletes the self-regulatory resources necessary to maintain positive health behaviors (Forsyth et al., 2014). This type of stress may indirectly contribute to obesity to the extent that it produces deleterious changes in diet and/or helps maintain unhealthy eating behaviors such as high fat intake and an increase in sugar intake (O'Connor, Jones, Conner, McMillian, & Ferguson, 2008).

**Coping with stress from discrimination.** As indicated, stress is a subjectively perceived discrepancy between environmental demands and biological, psychological, or social resources (Lazarus & Folkman, 1984). An important element of this definition is the perception of environmental demands or threats and perceived ability to meet these demands, labeled stress appraisal (Lazarus & Folkman, 1984). Two major components of stress appraisal processes are primary appraisal, which reflects perceptions of the nature and degree of risk (i.e., potential threat) that a situation presents, and secondary appraisal, which reflects perceptions of resources or abilities to cope with the situation. Together, these judgments reflect the extent to which stressors are perceived as within or outside an individual's resources or ability to cope (Tomaka, Blascovich, Kelsey, & Lieten, 1993).

Lazarus and Folkman's (1984) transactional theory of coping has been referred to as the most widely accepted process-based model of coping (Sinha, 2001). Lazarus (1990) noted that the stress-coping relationship is one in which the demands of the stressor exceed or tax one's ability to adequately respond. Coping refers to cognitive and behavioral efforts to master, reduce, or tolerate the internal and/or external demands

created by the stressful transaction (Folkman & Lazarus, 1980, Lazarus & Launier, 1978). An important feature of this definition is that coping is defined independently of its outcome. That is, coping refers to efforts to manage demands, regardless of the success of those efforts (Folkman, 1984).

Coping is viewed as having two major functions: the regulation of emotion or distress (emotion-focused coping) and the management of the problem that is causing the distress (problem-focused coping; Folkman, 1984). Folkman and Lazarus (1980) have shown that both forms of coping are used in most stressful encounters and that the relative proportion of each form varies according to how the encounter is appraised. Folkman and colleagues (1986) noted that individuals use more problem-focused forms of coping in encounters they appraised as changeable, and more emotion-focused coping strategies in situations they view as unchangeable.

Studies have suggested that Black women commonly use emotion-focused coping, such as passive and avoidant strategies, as a means to address negative experiences (Shorter-Gooden, 2004; Utsey et al., 2000). These passive and avoidant strategies can range from denial to engaging in hazardous health behaviors to circumvent the emotional turmoil experienced. Research has indicated that Black women may resort to damaging coping behaviors such as eating unhealthy foods or overeating to manage their feelings towards stressful experiences (Thompson, 1992). As such, an understanding of how Black women cope with discrimination is one important avenue to pursue for minimizing the damaging health consequences of discrimination (Shorter-Gooden, 2004). Unfortunately, no study has evaluated whether both racial and gender discrimination in tandem are related to Black women's engagement in eating patterns that are unhealthy.



This line of study is warranted because it may elucidate a portion of the underlying causes of obesity that substantially plague Black women.

***Maladaptive eating behaviors as coping.*** Eating has been recognized as a coping mechanism for alleviating and dealing with stress and emotions (Geliebter & Aversa, 2003; Solomon, 2001; Timmerman & Acton, 2001). Surveys demonstrate that most people experience on average a 30% increase in appetite and food intake in response to emotional stress (Macht, 2008) despite the fact that evidence suggests that stress-related eating is not an effective coping mechanism (Wallis & Hetherington, 2009). Studies have also shown that those with high levels of stress binge eat three times more frequently than those with low levels of stress (Pendleton et al., 2001). Emotional eating does not serve to reduce distress either during the eating episode or after eating has ended (Polivy & Herman, 1999) and epidemiological data indicate that stress-related eating is associated with increased body weight (Laitinen, Ek, & Sovio, 2002). Among stress-driven eaters, body mass index (BMI) tends to be greater compared to non-stress-driven eaters (Laitinen et al., 2002).

While greater levels of stress have been shown to result in overeating, the health risks may be compounded if individuals tend to eat foods with a high fat content, primarily because high fat intake is a significant risk factor for obesity (Dreeben, 2001). Stress-driven eaters have been found to have a tendency to eat more sausages, hamburgers, pizza, and chocolate, which are traditionally high in fat content (Laitinen et al., 2002). Under stressful conditions, individuals gravitate toward a range of high-fat foods that increase their appetite and cause them to gain weight (Blundell & Macdiarmid,

1997). In addition, high-fat foods significantly lead to overeating, which serves as a risk factor for overweight and obesity (Lawton, Burley, Wales, Blundell, 1993).

In addition, research has shown that individuals who have a tendency to eat sugary foods as a “comfort food” under stressful conditions increase their chances for overweight and obesity (Dallman et al., 2003). In fact, several studies have correlated the rise in the incidence of obesity with an increase in sugar consumption (Bray, 1992; Howard & Wylie-Rosett, 2002, Ludwig, Peterson, & Gortmaker, 2001). Furthermore, a continual intake of sugar may also lead to dependency as the further ingestion of sugar evolves into cravings and reliance on sugary foods (Fullerton, Getto, Swift, & Carlson, 1985). Research has indicated that stress induced by social situations leads to the increased consumption of foods that are sweet, high in fat, and more energy dense (Oliver, Wardle, & Gibson, 2000) and Jackson and colleagues (2010) have argued that Black Americans often cope with stress by engaging in unhealthy behaviors, like comfort food eating which consists of high-fat and sugary foods.

***Black women, coping with discrimination, and maladaptive eating behaviors.***

Most of the research on how Black women cope focuses on strategies that are used to deal with general problems, such as interpersonal and financial problems, rather than strategies that are invoked by racial or gender bias specifically (Shorter-Gooden, 2004). Research conducted on how Black Americans cope with bias and prejudice generally has focused on racial rather than gender discrimination (Shorter-Gooden, 2004). Before delving into discussing maladaptive eating behaviors as coping strategies, it is important to understand the holistic approaches Black people have been shown to take when coping with discrimination, which include but are not limited to eating. For example, Utsey and

colleagues (2000) noted that Black Americans' coping strategies when faced with discrimination focus on finding balance between physical, metaphysical, collective, spiritual, and psychological realms. Research has found that Blacks' unique coping processes include a reliance on the family and the community, cooperation, a belief in hard work, achievement, responsibility, and religious beliefs and rituals, including prayer (Daly, Jennings, Beckett, & Leashore, 1995; Utsey et al., 2000).

The research on the coping strategies that Black Americans generally use is undeniably instructive and valuable, yet it does not tell us whether these same strategies are used to manage racial and gender stressors (Shorter-Gooden, 2004). Of note, there are two studies to mention that consider both racial and gender discrimination among Black women. Krieger (1990) found that Black women were more likely to keep quiet and accept discrimination than White women. Black women were also more likely to use avoidance than problem solving and seeking social support, and avoidance was negatively related to self-esteem and life satisfaction (Utsey, Ponterotto, Reynolds, & Cancelli, 2000). Furthermore, Shorter-Gooden (2004), in a qualitative study examining reactions to and coping with racism and sexism, found that Black women rely on inner resources, including spirituality, using examples from ancestors, and a sense of valuing the self. The women in the study also used external resources, including social support. As evidenced by the studies that have been discussed thus far, most of the research on how Black Americans cope with bias focused on racism specifically; only a few studies tackle how Black women cope with sexism as well (Shorter-Gooden, 2004). In addition, as previously discussed, much of the literature asserts the importance of family, internal resources, social support and religiosity as central coping strategies for Blacks in general

(Shorter-Gooden, 2004) with little attention to the unhealthy aspects of coping with discrimination, such as maladaptive eating, that may be damaging to their physical health.

Although there is scant research on this topic, some work has suggested that Black women's engagement in maladaptive eating behaviors is a reflection of their muted protest against racial oppression and gender roles (Beauboeuf-Lafontant, 2005). Through her work exploring experiences of strength, self, embodiment, and unhealthy eating via interviews with twelve Black women, Beauboeuf-Lafontant explained that social restrictions may lead Black women to develop and demonstrate their frustrations through their bodies. She described Black women's unhealthy eating as a reaction to the normalized inequities in their social relationships and the expectations of selflessness made of them. Under the pressure of having to be strong against stressors associated with racial and gender discrimination, Black women may resort to maladaptive eating as a coping mechanism and a temporary "exit."

**Racial discrimination.** In order to fully understand racial discrimination, the significance of racism as a systemic entity in which racial discrimination manifests must be briefly discussed. While there has been no agreement on the exact definition of the concept, racism, for this review, will be defined as "a system of cultural, institutional, and personal values, beliefs, and actions in which individuals or groups are put at a disadvantage based on ethnic or racial characteristics" (Tinsley-Jones, 2001, p. 573). Racism is rooted in a historical continuity of injustice and disparity that is linked to contemporary circumstances and systematically influences the conditions and experiences of large groups of people. Racism often leads to the development of negative

attitudes and beliefs toward racial outgroups (prejudice), and differential treatment of members of these groups by both individuals and social institutions (i.e., discrimination; Williams & Mohammed, 2009). Moreover, negative racial stereotypes that are deeply rooted in mainstream culture can serve as an additional source of discriminatory behavior that perpetuates unfair treatment (Williams & Mohammed, 2009). The omnipresent nature of racism contributes to its potential to be a source of biological, psychological, and social stress that may have a deleterious impact on health outcomes (Clark et al., 1999). Racial discrimination as one aspect of racism that is a socially structured and sanctioned phenomenon is increasingly receiving empirical attention as a leading cause of disparities in health (Williams & Mohammed, 2009; Johnson et al., 2012).

Racial discrimination is the subjective and objective experience of prejudice or discrimination (Harrell, 2000) and is insidious and permeates many aspects of Black life (Utsey et al., 2000). For many Blacks, encountering racial discrimination is often a daily experience (Utsey et al., 2000). Considerable scientific evidence indicates that racial discrimination persists in multiple contexts of American society including housing, labor markets, criminal justice, and education (Blank, Dabady, & Citro, 2004; Williams & Mohammed, 2009), which contributes to its pernicious and pervasive presence (Greer, 2011). Pearlin and colleagues (2005) noted that stressors involving ascribed statuses, such as those of race and gender, have powerful consequences, both because they challenge important rights and opportunities and because they are a threat to important identities. Stressors that are ambiguous, negative, unpredictable, and uncontrollable are particularly pathogenic (Carter, 2007; Williams & Mohammed, 2009). As such, it is not

alarming that racial discrimination has been identified as stressor that may contribute to racial disparities in health (Shelton et al., 2009).

Evidence from empirical studies has documented particular physical impacts on health from racial discrimination among Black women. To cite a few examples, Cozier and colleagues (2009) prospectively evaluated the association of racial discrimination with weight change and waist circumference over eight years of follow-up among 43,103 U.S. Black women. Overall, 34% of the women in the study reported that they had encountered one or more experiences of everyday racial discrimination occurring at least one time per month over the eight-year time frame. Also, 80% reported at least one major discriminatory event in their lifetime. Moreover, a positive association between racial discrimination and weight gain was observed, which adds to the body of evidence that experiences of racial discrimination may contribute to the excess burden of obesity observed in Black women. Both everyday racial discrimination and lifetime racial discrimination were associated with weight gain, regardless of BMI, education, coping, or geographic region (Cozier et al., 2009). It is important to point out that Black women in this study with higher coping skills had lower absolute weight gain over the eight-year period. This research suggests that experiences of racial discrimination may contribute to the excess burden of obesity in U.S. Black women via their adverse exposure to such events. In addition, the study findings suggest the importance of Black women having healthy coping responses to discrimination in order to combat negative health risks that could accompany these stressful occurrences (Cozier et al., 2009).

In another study, Tull and colleagues (1999) found that internalized racism, defined as the extent to which Blacks identify with racial stereotypes, was significantly

correlated with higher waist circumferences and weight even after controlling for age, education, anxiety, and depression in a population of Black women aged 20-55 years. In this study, the odds of abdominal obesity were 2.3 times greater for women with high internalized racism than for those with low internalized racism, independent of age, education, and overall obesity. Using focus groups, Wagner and colleagues (2011) explored Black women's beliefs about how racial discrimination interacts with their diabetes self-management and control. Specifically, they reported that exposure to racial discrimination caused emotional and physiological arousal that was detrimental to their health. Some women also described maladaptive strategies to cope with racist events including eating unhealthy foods and large food portions in response to negative emotions associated with racism, which had strong implications for glucose control (Wagner et al., 2011). These findings elucidate mechanisms through which greater racial discrimination may lead to an increased risk for poor health outcomes in Black women.

Results like the aforementioned studies and others highlight a growing health problem among many Black women. Research has shown that Black women who have experienced discrimination and feel stressed or overwhelmed are less likely to engage in health risk reduction behaviors (Walcott-McQuigg, 2000), and are more likely to experience negative symptoms associated with stress that could exacerbate existing health problems or facilitate the development of new ones (Townsend, Hawkins, & Batts, 2007). Despite the perpetual acts of racial discrimination directed toward Black women, and the known stressors associated with it, relatively little attention or resources have been allocated to develop a better understanding of Black women's experiences and health behaviors. In addition to the impact of racial discrimination on Black women's

health behaviors, gender socialization may cause the stressful experiences of racial discrimination to be different for Black women than for Black men, given that Black men benefit from male privilege (Talleyrand, 2006).

**Gender discrimination.** A salient disadvantage associated with women's social status in the U.S. is sexism, which is a system of oppression and discrimination (Yoder & McDonald, 1998) and gender-specific negative life events that happen to women, because of their membership in gender-defined groups (Krieger, Rowley, Herman, Avery, & Phillips, 1993). Sexism is defined as a system of oppression based on gender differences that involve cultural, institutional policies and practices, and the discriminatory beliefs and actions of individuals (Shorter-Gooden, 2004). In general, sexism is the belief that one sex is superior to another (Szymanski & Stewart, 2010). Like racism, sexism is reflected in individual attitudes, collective ideology, and the structure of social institutions (Harrell, 2000). Sexism includes discrimination against women because of their gender, the perception that women are inferior to men, as well as gender-based limitations on personal, social, and occupational roles and opportunities (Klonoff & Landrine, 1995).

Gender discrimination refers to the subjective experience of sexism marked by the elevation of the power of men and the subordination of women (Borrell et al., 2010; Klonoff and Landrine, 1995). For decades, studies have shown that women have often received inferior, insensitive treatment by public institutions and society in general. Examples of gender discrimination that women, regardless of race, may experience include being perceived as incompetent based on gender, evaluated based on physical attributes, paid and promoted unfairly compared to men of similar training and



experience, and receiving less attention in educational settings (Downie, 1998). Gender discrimination is often covert and unconscious by others, and can be perpetuated by many individuals in a woman's life, including spouses, supervisors, family, friends, and strangers across all settings (Moses-Nunley, 2005). Studies that have utilized the Schedule of Sexist Events (SSE; Landrine & Klonoff, 1997), which assesses exposure to gender discrimination in a variety of life domains, have shown that the more women report having experienced discrimination on the basis of their gender, the more they report psychological distress, and that these experiences contribute to distress above and beyond the effects of generic stressors (Landrine & Klonoff, 1997; Landrine, Klonoff, Gibbs, Manning, & Lund, 1995; Moradi & Subich, 2002, 2004).

Chronic and acute stressors associated with gender discrimination have been linked to women's mental and physical health outcomes (Klonoff, Landrine, & Campbell, 2000; Moradi & Subich, 2003; Perry et al., 2013). For example, gender discrimination has been associated with hypertension (Krieger, 1990), premenstrual symptoms (Landrine & Klonoff, 1997), functional limitations that may lead to physical disabilities (Pavalko, Mossakowski, & Hamilton, 2003), obsessive-compulsivity, anxiety, interpersonal sensitivity (Landrine et al., 1995) and physical symptoms including nausea and headaches (Goldenhar, Swanson, Hurrell, Ruder, & Deddens, 1998).

Recent research has conceptualized gender discrimination as a negative life stressor and as an underlying pathway that may influence health (Dailey, Kasal, & Jones, 2008; Klonoff & Landrine, 1995; Clark et al., 1999). These stressful experiences may lead to a decrease in health-sustaining behaviors and an increase in health-damaging behaviors (Landrine & Klonoff, 1996; Woods, Lentz, & Mitchell, 1993). A few studies

have examined the influence of gender discrimination on health behaviors. For example, Zucker and Landry (2007) explored in a sample of female college students the association between gender discrimination and binge drinking and smoking and whether this relation was mediated by psychological distress. Using the SSE (Landrine & Klonoff, 1997) the authors found that the experience of sexist events was related to personal psychological distress, as well as related to alcohol and tobacco use. Although this study had a very small sample of Black women and is correlational and cannot assess causality, it suggests that sexist experiences may be important predictors of perceived psychological distress and physical health behaviors.

Further, in a study focused on subtle, daily experiences of sexist events, Landrine and colleagues (1995) found that women's reported experiences of gender discrimination accounted for 43% of the variance in their physical and psychological symptoms above and beyond their experience of daily hassles. They also found that perceptions of gender discrimination were a better predictor of premenstrual symptoms, somatization, obsessive-compulsive, depressive, and total psychiatric and physical symptoms than were daily hassles (Landrine et al., 1995). Furthermore, evidence suggests that women of color and unmarried women may report more frequent perceptions of sexist events than non-Hispanic White American women and married women (Klonoff & Landrine, 1995; Matteson & Moradi, 2005).

While this literature sheds light into the undignified treatment of women, what is lacking from research is the extent to which Black women perceive and internalize sexist experiences and transpose these stressful incidents into the engagement of negative eating behaviors as a means to cope. Unfortunately, scholars have been slow in linking adverse

health behaviors among Black women to their distinct status as both gender and racial minorities (Shorter-Gooden, 2004; Thomas & Gonzalez-Prendes, 2009). The analysis of either, and not both, distorts the lived experiences of these particular women (Cotter, Hermesen, & Vanneman, 1999). The combination of racial and gender discrimination and negative health behaviors as coping strategies have created conditions that present significant challenges for the health conditions of Black women when compared with non-Hispanic White women and men, and as compared with Black men (Williams, Mohammed, Leavell, Collins, 2010). Furthermore, minority individuals who have been exposed to the stressful experiences of discrimination have been theorized to have an external locus of control characterized by feeling less in control (Goodman, Cooley, Sewell, Leavitt, 1994). Perceived control has been conceptualized as a resource in the stress and coping process (Lazarus & Folkman, 1984; Martin & Lefcourt, 1983; Pearlin & Schooler 1978) and many studies have found that control has a profound effect on health (Rodin, 1986). In addition, the field of stress research has emphasized that the multidimensionality of the locus of control construct deserves more attention (Payne, 1988). Considering these points, as a part of the stressful experiences associated with racial and gender discrimination, locus of control may play a role in the processes linking discrimination to maladaptive eating behaviors among Black women.

### **Health Locus of Control as a Moderator**

Because stress has been implicated in the etiology of numerous psychological and physical illnesses (Bollini et al., 2004) finding ways to prevent or reduce the stress response could have significant health benefits. Locus of control (LOC) is one personality variable that researchers have identified that can affect the intensity of the

psychological response to stress (Bollini et al., 2004). In fact, research has suggested that the mere perception of having control may have beneficial psychological and physiological effects on an individual's ability to manage the effects of a stressful event (Bollini et al., 2004). The LOC construct originated in Rotter's (1966) Social Learning Theory over four decades ago. According to Rotter, individuals with an internal LOC believe environmental events are contingent on their behavior (i.e., influenced by one's own behavior), while those with an external LOC consider events to be a consequence of chance, luck or fate, or to be controlled by powerful others (e.g., medical doctors, God). Further, an internal LOC is often equated with a perceived sense of personal control, which is a learned, generalized expectation that outcomes are contingent on one's own choices and actions (Mirowsky & Ross, 2003). According to Mirowsky and Ross, those who believe that they have little or no control over their own lives generally feel more distressed and helpless than others, and are, therefore, likely to have lower life satisfaction and to engage in maladaptive coping. A greater sense of personal control is thought to lead to greater self-assurance and hope, whereas the sense of not being in control of the outcomes in one's life is not only demoralizing in its own right, but also may diminish the will and motivation to solve and avoid problems.

Over a decade after the creation of Rotter's (1966) original internal-external LOC construct, Wallston, Wallston, Kaplan, and Maides (1976) developed the Health Locus of Control (HLOC) scale, which was later followed by the Multidimensional Health Locus of Control scales (Wallston, Wallston, & DeVellis, 1978), to provide a multidimensional assessment of beliefs about control over health, known as health locus of control. Health locus of control (HLOC) is defined as the degree to which individuals believe that their

health is controlled by internal or external factors. External beliefs are premised on the notion that one's health outcome is under the control of powerful others (i.e., medical professionals) or is determined by fate, luck, or chance. Internal beliefs characterize one's health condition as being the direct result of one's own action (Wallston et al., 1976). According to the HLOC theory (Wallston et al., 1976), persons with strong internal control beliefs are most likely to engage in positive health-related behaviors, whereas individuals with external control beliefs are not likely to fare as well. Wallston and colleagues (1978), in a number of studies, found that individuals having an internal HLOC orientation are more likely than those with an external HLOC to engage in behaviors that facilitate health or well-being. Subsequent work has shown that internal HLOC has been linked to knowledge about disease, ability to stop smoking, and ability to lose weight (Thornton et al., 2006). Other studies report that external HLOC is associated with poor medication adherence (Cvengros, Christensen, & Lawton, 2004) and other undesirable health outcomes such as poor self-rated health (Leinsalu, 2002) and mortality (Krause & Shaw, 2000).

In Lazarus's (1966) seminal work, he asserted that a person's belief about control influences a person's perception of threat in stressful situations. This knowledge has prompted investigators to conduct studies aimed at elucidating the effect of stressor control on the individual stress response (Bollini et al., 2004). Research shows that individuals who believe that they can do something about their health (i.e., have an internal HLOC) have a more positive psychological adaptation to stress relative to those who do not hold such beliefs (Shapiro, Schwartz, & Astin, 1996). For example, Horner (1996) examined the relationships among stress, general LOC, and physical illness.

Findings from this study revealed that an external LOC is associated with higher levels of perceived stress and illness. Bollini and colleagues (2004) also assessed the relationship between perceived control and biological and subjective stress responses. They found that individuals who have a high external LOC reported higher levels of psychological and physical problems. In addition, these individuals were found to be more responsive to stress (Bollini et al., 2004). While these studies give reason for assessing LOC when attempting to address stress-related issues and health behaviors and outcomes, the studies conducted to date have had very small samples of minorities, if at all, and did not consider other types of stressors, such as racism or sexism, other than financial and interpersonal stressors.

Research has shown that stressful life events often precede negative health behaviors and outcomes and considering variables that may moderate this relationship are needed. Although it is reasonable to assume that stress will have a negative effect on individuals, it seems likely that these effects vary from person to person and may be moderated by individual difference variables (Johnson & Sarason, 1978). As the LOC construct seems to reflect the extent to which individuals believe themselves capable of exerting personal control over events, one might expect internals and externals to respond differently to stress (Johnson & Sarason, 1978). In addition, Cohen and Edwards (1989) concluded that LOC is the personality characteristic that provides the most consistent and the strongest evidence of stress moderation. Thus, HLOC, as a moderator, is a promising concept in understanding the relationships among stress from discrimination and health behaviors, particularly in minorities.

### **Black women, health locus of control, and stress from discrimination.**

Research generally finds that minority group members, such as Blacks, tend to have higher degrees of external LOC than do non-Hispanic White Americans (Mirowsky & Ross, 2003), likely reflecting a history of discrimination and restricted opportunities that have plagued Blacks in the U.S. (Fiori, Brown, Cortina, & Antonucci, 2006).

Furthermore, theoretical explanations for racial differences in LOC beliefs include the relative deprivation and denigration experienced by Blacks (Joe, 1971), the relative lack of opportunity for Blacks to exert control over the environment (Coleman, 1966), and the lower educational attainment of Blacks compared to Whites (Kinder & Reeder, 1975). Indeed, empirical research has revealed that discrimination is related to lower levels of perceived control (Landry & Mercurio, 2009). Ruggiero and Taylor (1997) found when manipulating frequency of discrimination, those individuals who believed they were having fewer experiences with discrimination reported greater perceived control than those who believed they were experience ongoing, frequent discrimination. Similarly, Valentine and colleagues (1999) found in a study examining discrimination at work that perception of racial discrimination was related to individuals feeling less in control in their lives. Consequently, theory and empirical research linking discrimination to health suggest that sense of control may be an important mechanism for understanding the influence of discrimination on health (Landry & Mercurio, 2009), particularly in Black women.

In addition to differences in LOC based on race, LOC also appears to differ by gender (Levin, Taylor, & Chatters, 1994). Based on a history of economic dependency, restricted opportunities, and role overload, women tend to have a lower sense of personal

control than do men. Fischer and Holz (2010) proposed that women who report experiencing sexist discrimination may feel a reduced sense of control over their life, which may in turn contribute to distress and threaten well-being. Given the extant literature on the negative effects of sexism in modern societies (Goodwin & Fiske, 2001), it seems particularly important to explore the role of factors like LOC, as evidence of possible mechanisms that may inform both theoretical and practical work in health (Landry & Mercurio, 2009). Consideration towards understanding the compounded circumstances of being Black and a woman, LOC in the context of health should be measured to gain a greater understanding of the complex issues associated with health disparities in this group (Mays, Cochran, & Barnes, 2007).

A study by Pieterse and Carter (2010) provided particular insight into how HLOC affects the health of Black women. Their exploratory investigation examined the relationship between racial identity and racism as predictor variables and perceptions of health status and HLOC as criterion variables in a sample of 90 Black women. In particular, the researchers explored whether self-reported health status and HLOC were influenced by people's racial perceptions of their environments (racism) and/or by their psychological orientation to their racial group (racial identity). In sum, the findings revealed that Black women who experienced racist incidents were more likely to believe that their health outcomes are either in the hands of people who they perceive to be in positions of power or that their health status is associated with fate or luck (i.e., external HLOC). Thus, HLOC may be useful in understanding Black women's views regarding their ability to assume responsibility and control over their health behaviors despite stress from racial and gender discrimination. In particular, those Black women who feel they



have more control over their health may be more likely to engage in behaviors that decrease poor health outcomes, such as avoiding unhealthy eating. However, those who feel their health is not in their control (i.e., those with external LOC) may engage in behaviors that compromise their health.

Related to external LOC is the construct of fatalism. Fatalism is the idea and belief that regardless of actions or deeds, there are some things in life such as catastrophic events, accidents, illness, and death that are predestined to occur (Straughan & Seow, 1998). Fatalism is traditionally understood as a construct that identifies and coincides with individuals having an external locus of control over life situations within the chance locus of control domain (Mirowsky & Ross, 1984). Notions of luck, fate, chance, and God are encompassed in the definition of fatalism (Straughan & Seow, 1998). Fatalism is repeatedly reported as a barrier for Blacks seeking health promotion, disease prevention, and treatment for chronic diseases (Morgan, Tyler, & Fogel, 2008; Powe & Finnie, 2003). Authors ascribe the origins of fatalism in Blacks to the universal experience of dread and despair stemmed from years of enslavement and to the experience of coping with a life of hopelessness (Egede & Bonadonna, 2003). This historical perspective is particularly pertinent to health beliefs and practices that have an impact on Black Americans' current health behaviors (Morgan et al., 2008). Several reports show that differences exist in the health care beliefs and practices for Blacks as compared with other racial/ethnic groups (Phillips & Williams-Brown, 2005; Ganesan et al., 2003).

For example, Barroso and colleagues (2000) found significant differences in health beliefs about breast cancer and locus of control between Black and White women. Black women reported that having good health was a matter of luck. They were found to

believe that their health was a matter of chance more so than White women. In another study examining the perceptions of fatalism among low-income urban Blacks, Greiner and colleagues (2005) reported that many of the Black Americans held fatalistic beliefs about cancer, in that screening and treatment for cancer were pointless and that having surgery for cancer would cause the disease to spread. In a 2007 study conducted by Franklin and colleagues examining religious fatalism as a potential barrier to good health and healthy behavior, male and female Black residents were found to have more religious fatalism than White residents. Furthermore, dietary health behaviors were found to be associated with fatalistic beliefs, such that fatalistic beliefs were related to increased fat intake (Franklin et al., 2007).

The results of these studies offer evidence regarding the differences in fatalistic beliefs about health across racial/ethnic groups and why chance LOC should be explored in depth as a construct that is relative to Black people. More research on this area is warranted in order to gain a better understanding of the ways in which chance LOC influences health behaviors, which in turn influence health outcomes (Franklin et al., 2007). A fatalistic orientation influences adaptive behaviors and impacts interactions with health care providers and organizations (Neff & Hoppe, 1993). In the Black community, fatalism is viewed as an adaptive response to uncontrollable life stress and situations (Morgan et al., 2008), particularly stressors related to experiences of discrimination.

Although there is considerable evidence to support the contribution of stress experiences to health (Ng & Jeffrey, 2003; Sawyer et al., 2012), major substantive questions remain about the conditions that moderate the effects of stress from discrimination on health behaviors, specifically in Black women. The identification of

factors that moderate the effects of stress is important both because it enables improved prediction of the outcomes of exposure to stressors and because it furthers our theoretical understanding of the process by which people adapt to stressors (Sandler & Lakey, 1984). Few reports are available studying HLOC among Black women and research has continually suggested that LOC may be an important factor in understanding the influence of discrimination and associated stressors in this minority group. In sum, this study aimed to build on the discrimination-related health literature by examining the effects of racial and gender discrimination on Black women's eating behaviors, taking into account the moderating role of health locus of control.

### **The Current Study**

Overweight and obesity have been increasing for over 20 years in the U.S., with Black women having the highest prevalence of obesity of any racial group (53%), which continues to rise (Moore-Greene et al., 2012). Many factors may contribute to the higher prevalence of overweight and obesity in Black women (Moore-Greene et al., 2012). Associations between discrimination and health behaviors have been identified (Ingledew, Hardy, Cooper, & Jemal, 1996; Laitinen et al., 2002; Oliver & Wardle, 1999). Although Black women continue to be confronted with both racial and gender oppression (Essed, 1991; Greene, 1994; Jones & Shorter-Gooden, 2003; Shorter-Gooden, 2004), how these specific types of stressors are directly related to Black women's health is still unclear. Research has suggested that racial and gender discrimination may lead to changes in behaviors such as eating habits that have an influence on weight (Epel et al., 2004; Malpede et al., 2007; Moore-Greene et al., 2012).

Additionally, there are no studies that have considered psychological processes, such as health locus of control, and whether the relationship between discrimination and eating behaviors is moderated by Black women's perception of control in their lives. Hence, this study examined the relationship between discrimination (i.e., racial and gender) and dietary behavior (i.e., high-fat eating and snacking on sweets) and whether health locus of control orientation served as a moderating variable of this relationship among Black women.

Toward this aim, the current study goals were to:

1. Examine the relationship between discrimination (i.e.g., racial and gender) and dietary behavior (i.e., high-fat eating behaviors and snacking on sweets eating behaviors) and
2. Examine whether the relationship between discrimination (i.e., racial and gender) and dietary behavior (i.e., high-fat eating behaviors and snacking on sweets eating behaviors) is moderated by health locus of control orientation (i.e., internal and chance health locus of control) among Black women.

Based on theory and existing research, the following specific hypotheses were advanced:

1. Racial discrimination will be negatively associated with low-fat eating behaviors and positively associated with snacking on sweets eating behaviors;

2. Gender discrimination will be negatively associated with low-fat eating behaviors and positively associated with snacking on sweets eating behaviors;
3. Internal HLOC will be positively associated with low-fat eating behaviors and negatively associated with snacking on sweets eating behaviors;
4. Chance HLOC will be negatively associated with low-fat eating behaviors and positively associated with snacking on sweets eating behaviors; and
5. Internal HLOC and chance HLOC will moderate the relationship between racial and gender discrimination and low-fat eating behaviors and snacking on sweets eating behaviors.

## **Chapter III: METHODS**

### **Participants**

Two hundred and twenty-seven Black women were recruited via convenience sampling. The sample consisted of undergraduate and graduate students at a large, urban, ethnically-diverse Southwestern university via web and classroom announcements (see Appendix C) and participants from the community recruited from selected Black professional organizations (i.e., sororities, Association of Black Psychologists, and American Psychological Association's Division 35: Section 1- Psychology of Black women), and social media outlets (e.g., Facebook pages such as American Psychological Association Divisions 35 and 45, Twitter posts from personal account). Social media participants, in particular, were provided a link to the study. In addition, participants were encouraged to direct the link to others who may fit the criteria and would be willing to participate in the study. Participants ranged from 18 to 64 years of age, with the most frequent ages reported being between 31-35 years old (24.2%), 26-30 years old (21.6%), and 41-45 years old (13.2%). With regard to education level, the largest portion of the sample had a master's degree (47.6%). Reported income levels varied and was representative of: over \$100,000 (18.1%), \$40,000 - \$49,999 (14.5%), \$30,000 - \$39,999 (12.8%), and \$50,000 - \$59,999 (12.3%). In terms of employment status, 73.1% reported being employed and 17.2% were students. With regard to relationship status, 49.8% were single and 31.7% were married. Table 1 contains further demographic information about the sample.

### **Procedures**

After obtaining IRB approval, the investigator sent a study-recruitment announcement via electronic distribution and asked instructors of undergraduate and graduate students to make a classroom announcement about the study. Potential participants were directed to the survey website (i.e., Survey Gizmo), where they first read an informed-consent statement describing the research procedures and steps taken to protect participants' privacy (see Appendix A). Participants were encouraged not to provide self-identifying answers or statements in the comment boxes. Next, qualifying questions were asked regarding participants' sex and self-identified race before the participant proceeded. Participants were excluded if they did not identify as a woman and as Black. Next, participants completed the survey instruments. After participants submitted the completed surveys, they were asked if they would like to include their email address to participate in a raffle to receive one of four \$25 American Express gift cards after the completion of the survey. Student participants also indicated whether they had completed the survey for course credit. Participants were immediately logged off once they either provided their email address to be included in the raffle or indicated that they did not want to participate in the raffle. For those who completed the survey via SONA (a University-based system to recruit research participants for course credit or other incentives), the instructor of the course distributed the appropriate type and amount of credit to the participant. Participation in the study took no more than 20 to 25 minutes. Data were collected between November 2014 and February 2015.

## **Measures**

**Demographic questionnaire.** Participants were asked about their race and sex as a screening measure to determine eligibility for the study. Additional demographic

information was collected on their age, highest level of education, annual household income, and marital status (see Appendix B).

**Multidimensional Health Locus of Control (MHLC).** The MHLC developed by Wallston, Wallston, and De Vellis (1978) measures beliefs about the sources of reinforcement for an individual's health-related behaviors. The MHLC scale is designed as a five-minute scale that may be given to anyone with an eighth-grade or higher reading level (Wallston and Wallston, 1982). The MHLC scale contains 18 questions in a Likert format ranging from 1 = *strongly disagree* to 6 = *strongly agree*. This scale assesses three locus of control beliefs related to health corresponding to three six-item subscales: (a) Internal, reflecting the degree to which health is seen as under the control of internal factors (e.g., "I can pretty much stay healthy by taking good care of myself."); (b) Chance, reflecting the degree to which chance influences one's health (e.g., "When I become ill, it's a matter of fate."); and (c) Powerful Others, reflecting the degree to which powerful others such as doctors influence one's health (e.g., "Following doctor's orders to the letter is the best way for me to stay healthy."). Ratings are summed, such that scores on each subscale range from 6 to 36. The higher the score on the HLOC-Internal, HLOC-Chance and HLOC-Powerful Others subscales, the greater the belief in internal control over health, influence of chance over health, and the influence of powerful others over health. Only the Internal and Chance HLOC subscales were used for this study.

The MHLC has displayed variable reliability across racial and ethnic groups. Malcarne, Fernandez, and Flores (2005) reported reliability coefficients for three ethnic/racial groups as follows: for White Americans, alpha ranged from .55 for Chance to .66 for Internal; for Filipino Americans, from .52 for Chance to .76 for Internal; and



for Latino Americans, from .50 for Powerful Other to .68 for Internal. For Black samples specifically, reliability ranges have also displayed variability, with one study reporting alpha coefficients ranging from .66 for Internal to .79 for Powerful Others (Ayalon & Young, 2005) and another reporting alphas ranging from .51 for Chance, .64 for Powerful Other, and .50 for Internal locus of control (Pieterse & Carter, 2010). Reliability ranges for Blacks fall within the range of alpha coefficients for other samples of people of color. While it is evident that the reliability coefficients for the MHLC scale tend to be on the lower range of acceptability, it is important to note that some scholars contend that adequate reliabilities should be viewed as being relative to the specific investigation and tend to be influenced by sample characteristics and psychological processes, such as individual interpretations of the items (Green, Chen, Helms, & Henze, 2011; Helms, Henze, Sass, & Mifsud, 2006; Onwuegbuzie & Daniel, 2002). In the current sample, Cronbach's alphas were .80 for Internal and .67 for Chance, which is aligned with the prior-mentioned studies utilizing this scale in samples of Blacks. Finally, the validity of the MHLC scales has been well established via numerous studies indicating convergent validity with measures assessing similar constructs such as Levenson's Locus of Control scales (Wallston, 2005).

**Schedule of Racist Events (SRE).** The SRE developed by Landrine and Klonoff (1996) is an 18-item self-report measure that assesses the frequency and stressfulness of selected racist experiences faced by Black Americans. Respondents are asked to reflect on their racist experiences over the past year and over their lifetime. The Lifetime Racist Event Scale was used in the current study. Example items include "How many times have you been accused or suspected of doing something wrong (i.e., such as stealing, cheating,

not doing your share of the work, or breaking the law) because you are Black?” and “How many times have you been treated unfairly by your employer, boss or supervisors because you are Black?” Each item is rated on a six-point Likert scale from 1 = *the event has never happened to you* to 6 = *the event happened almost all the time (more than 70% of the time)*. Ratings across items are added to obtain a total score and that could range from 18 to 108 for the SRE Lifetime. Higher scores indicate frequent exposure to race-related discrimination throughout one’s lifetime. Validity has been supported by exploratory and confirmatory factor analyses with significant positive correlations noted with global psychological distress scores and psychological distress subscale scores of depression, anxiety, interpersonal sensitivity, and somatization (Landrine & Klonoff, 1996; Klonoff, Landrine, & Ullman, 1999). In a test of concurrent validity, Blacks who smoked cigarettes experienced more frequent and distressing race-related discrimination than smokers (Landrine & Klonoff, 1996). Pieterse and Carter (2010) found the SRE to be a valid measure of racism for Black women and an important instrument to utilize when seeking to understand health disparities in the United States. The Cronbach’s alpha reliability coefficient for the Lifetime Racist Event Scale was .94 in Landrine and Klonoff’s (1996) original study. Cronbach’s alpha reliability coefficient for this scale was .96 in the current study.

**Schedule of Sexist Events (SSE).** The SSE (Klonoff & Landrine, 1995 & Landrine & Klonoff, 1997) measures the “common, pernicious, and (in some instances) subtle sexist events that all women experience” (Landrine, Klonoff, Gibbs, Manning, & Lund, 1995, p. 475). The SSE consists of 20 items that assess the perceptions of four different aspects of sexist experiences. These include *sexist degradation and its*

*consequences* (e.g., “How many times have you been called a sexist name?”), *sexism discrimination in distant relationships* (e.g., “How many times have you been treated unfairly by neighbors because you are a woman?”), *sexism in close relationships* (e.g., “How many times have you been treated unfairly by your family because you are a woman?”), and *sexist discrimination in the workplace* (e.g., “How many times have you been treated unfairly by your employers, bosses, and supervisors because you are a woman?”). All items are rated on a 6-point scale [1=*never happened*, 2= *once in a while (less than 10% of the time)*, 3= *sometimes (10-25% of the time)*, 4= *a lot (26-49%)*, 5= *most of the time (50-70%)*, 6=*almost all of the time (more than 70% of the time)*].

Participants rate each question to indicate how frequently the sexist experience occurred in the past year, and in a lifetime, as well as the stressfulness of sexism. The Lifetime Sexist Events Scale was used for this study. A composite score is created for lifetime sexist events by summing the scores of all 20 items, obtaining a range from 20 to 120 for the Lifetime Sexist Events Scale. Higher scores indicate higher frequency of sexist discrimination. In validating the measure, correlation analyses demonstrated that the SSE captured unique, gender-related events (Klonoff & Landrine, 1995). The measure’s factor structure was supported in a previous investigation (DeBlaere & Moradi, 2008). Klonoff and Landrine (1995) reported Cronbach’s alpha coefficient for the Lifetime Sexist Events Scale as .92. More recently, in studies conducted by Greer (2011) and Moradi and Subich (2003) high alpha levels were reported (.93 and .88, respectively) with samples solely of Black women. The Cronbach’s alpha coefficient for this scale in this study was .95.

**The Eating Behavior Patterns Questionnaire (EBPQ).** The EBPQ developed by Schlundt, Hargreaves, and Buchowski (2003) examines dietary habits associated with fat intake. It is a multidimensional and culturally-sensitive 51-item questionnaire that inquires about food selection and consumption habits (healthy and unhealthy) that can predict fat intake, particularly in Black women. During test construction, 40 Black women were enrolled in focus groups where they discussed food consumption patterns, completed the Meharry Food Frequency Questionnaire (Schlundt, Hargreaves, & Buchowski, 2000), and provided a 24-hour dietary recall. Utilizing these resources, items were generated to create food-related attitudes and eating behaviors (Sims et al., 2008). Ten categories were reduced to six eating behavior domains using principal component analysis. The subscale names, items per scale, and Cronbach alphas are as follows: (a) Low-fat eating (14 items:  $\alpha = .84$ ), (b) Emotional eating (10 items:  $\alpha = .77$ ), (c) Snacking on sweets (6 items:  $\alpha = .74$ ), (d) Cultural/lifestyle behaviors (7 items:  $\alpha = .59$ ), (e) Haphazard planning (9 items:  $\alpha = .50$ ), and (f) Meal skipping (5 items:  $\alpha = .59$ ). Since its development, over 300 Blacks with diverse socioeconomic and education backgrounds have been included in the validation process. Participants respond to items using a 5-point Likert scale ranging from 1 = *Strongly Disagree* to 5 = *Strongly Agree*. The EBPQ has an established overall Cronbach's alpha reliability of .74 (Schlundt et al., 2003). Specifically for this study, only the low-fat eating and snaking on sweets subscales were used.

The low-fat eating subscale assesses behaviors that decrease dietary fat consumption, for example, substituting low-fat alternatives in high-fat recipes (Evans, McNeil, Laufman, & Bowman, 2009). High positive correlations with other dietary fat

index questionnaires establish the subscale's criterion validity. Scores above the norm mean ( $M = 38.3$ ) indicate more low-fat eating habits, and scores below the norm mean indicate fewer low-fat eating habits. Examples of statements on the scale are "I use low-fat food products" and "I count fat grams." Cronbach's alpha coefficient for this scale was .80 in the current study.

The snacking on sweets subscale assesses behaviors that increase dietary snacking intake, specifically those that are sweet and high in fat. Scores above the norm mean ( $M = 17.1$ ) indicate more snacking on sweets eating habits, and scores below the norm mean indicate fewer snacking on sweets eating habits. Examples of questions on the scale are "*Sometimes I eat dessert more than once a day*" and "*I have a sweet tooth.*" Cronbach's alpha coefficient for this scale was .74 in the current study.

## Chapter IV: RESULTS

### Preliminary Statistical Analysis

The means, standard deviations, ranges, Cronbach's alphas, and intercorrelations were computed for all measures within the full sample, and these results are presented in Table 2. Histograms and skewness values (all  $< 1$ ) for continuous data from all variables were checked for normality. The data were screened for outliers or values at the lower or upper end that lie apart from the distribution. The data were graphed with a histogram to detect potential outliers to determine whether a score is very different from other scores. Three outliers were detected. The data collection instrumentation was reviewed and determined that all three outliers were due to a data entry error, which was corrected within the data set. Therefore, data analysis proceeded.

The distribution of the sample was normal, and the mean scores for Schedule of Racist Events – Lifetime ( $M = 83.64$ ,  $SD = 36.91$ ), Schedule of Sexist Events - Lifetime ( $M = 84.34$ ,  $SD = 32.78$ ), low-fat eating ( $M = 32.77$ ,  $SD = 8.21$ ), snacking on sweets ( $M = 15.51$ ,  $SD = 4.75$ ), Internal HLOC ( $M = 26.65$ ,  $SD = 5.49$ ) and Chance HLOC ( $M = 13.91$ ,  $SD = 4.75$ ) were comparable to scores on these measures in similar studies (Sims et al., 2008; Greer, 2011; Pieterse & Carter, 2010).

As expected, the results revealed correlations between the racial and gender discrimination variables ( $r = .66$ ,  $p < .01$ ). Racial discrimination was correlated with snacking on sweets ( $r = .13$ ,  $p < .05$ ) and not significantly correlated with low-fat eating behaviors. Gender discrimination was not significantly correlated with low-fat eating or snacking on sweets eating behaviors. Internal HLOC was correlated with chance HLOC ( $r = .13$ ,  $p < .05$ ). Internal HLOC was also positively correlated with low-fat eating ( $r =$

.15,  $p < .05$ ) but showed no significant correlation with snacking on sweets. Chance HLOC was positively correlated with snacking on sweets ( $r = .14$ ,  $p < .05$ ) but not significantly correlated with low-fat eating. Finally, low-fat eating was negatively correlated with snacking on sweets eating behaviors ( $r = -.15$ ,  $p < .05$ ).

### **Moderated Regressions**

Two moderated regression equations were computed for each eating behavior domain (i.e., low-fat eating and snacking on sweets eating behaviors) to test the hypotheses that discrimination (i.e., racial and gender) would moderate the relationship between discrimination and eating behaviors. Demographic covariates (i.e., age, education, and income) were correlated to low-fat eating but not to snacking on sweets. These covariates were included in the regression predicting low-fat eating; the pattern of results did not change so the model without the covariates is presented here. Prior to conducting the moderation regression analyses, continuous predictors were centered to reduce the threat of multicollinearity among these variables (Aiken & West, 1991). The ordering of each step was consistent with research questions. They were also in an order that would allow conclusions to be made regarding the predictors of interests (i.e., those entered later in the analyses) contribution to a unit change in criterion variables over and above predictors that were entered earlier in the analyses (Cohen, Cohen, West, & Aiken, 2003). In the regression analysis predicting low-fat eating behaviors, racist discrimination and sexist discrimination were entered in the first block, internal HLOC and chance HLOC were entered in the second block, and the interaction terms of racial discrimination, gender discrimination, internal HLOC, and chance HLOC (i.e., SRE x Internal, SSE x Internal, SRE x Chance, and SSE x Chance) were entered in the third

block. In the regression analysis predicting snacking on sweets eating behaviors, racist discrimination and sexist discrimination were entered in the first block, internal HLOC and chance HLOC were entered in the second block, and the interaction terms of racial discrimination, gender discrimination, internal HLOC, and chance HLOC (i.e., SRE x Internal, SSE x Internal, SRE x Chance, and SSE x Chance) were entered in the third block.

Table 3 presents the results of the moderated regression analysis predicting low-fat eating behaviors. As a whole, the model was not significant  $F(8, 218) = 1.04, ns$ .

The regression analysis predicting snacking on sweets included the same predictors in the same order as before. Table 4 presents the results of the moderated regression analysis predicting snacking on sweets eating behaviors. The model as a whole accounted for 8.1% of the variance in snacking on sweets eating behaviors. The block containing racial and gender discrimination accounted for 1.7% of the variance,  $F(2, 224) = 1.93, ns$ . Internal and chance HLOC accounted for an additional 2.9% of the variance  $F(2, 222) = 3.37, p < .05$ . The moderator effects accounted for an additional 3.6% of the variance  $F(4, 218) = 2.11, ns$ . Within this model, chance HLOC ( $\beta = .15, p < .05$ ) was significantly and positively predictive of snacking on sweets eating behaviors. The interaction effect of internal HLOC x racial discrimination ( $\beta = .01, p < .05$ ) positively and significantly predicted snacking on sweets eating behaviors. In addition, the interaction effects of internal HLOC x gender discrimination ( $\beta = -.01, p < .05$ ) and chance HLOC x racial discrimination ( $\beta = -.01, p < .05$ ) were negative and significantly predictive of snacking on sweets eating behaviors.



These results suggest that chance HLOC was predictive of snacking on sweets eating behaviors but racial and gender discrimination and internal HLOC were not predictive of snacking on sweets eating behaviors. The effect of internal HLOC on snacking on sweets eating behaviors depended on the level of racial and gender discrimination. Likewise, the effect of chance internal HLOC on snacking on sweets eating behaviors depended on the level of racial discrimination.

To more fully examine the significant interaction terms, simple slopes were tested and plotted to represent each interaction by calculating the predicted means for the dependent variable (i.e., snacking on sweets) at low and high levels of the focal predictor (i.e., racial or gender discrimination) and low and high levels of the moderator variable (i.e., internal or chance HLOC). Low and high levels were defined as 1 standard deviation below and 1 standard deviation above the mean for each respective variable. The plot of the internal HLOC x racial discrimination interaction predicting snacking on sweets eating behaviors is displayed in Figure 1. The plot of the internal HLOC x gender discrimination interaction predicting snacking on sweets eating behaviors is displayed in Figure 2. Finally, the plot of the chance HLOC x racial discrimination interaction is displayed in Figure 3. Each interaction was probed for significance using the procedures set forth by Aiken and West (1991).

For the interaction displayed in Figure 1 (the internal HLOC x racial discrimination interaction on snacking on sweets eating behaviors), when racial discrimination was held constant at a high level, there was not a significant relationship between internal HLOC and snacking on sweets eating behaviors,  $\beta = .0913$ ,  $t(227) = .76$ , *ns*. When racial discrimination was held constant at a low level, there was a significant

and negative relationship between internal HLOC and snacking on sweets eating behaviors,  $\beta = -.2832$ ,  $t(227) = -2.6974$ ,  $p < .05$ . When internal HLOC was held constant at a high level, there was a positive and significant relationship between racial discrimination and in snacking on sweets eating behaviors,  $\beta = .04$ ,  $t(227) = 2.35$ ,  $p < .05$ . However, when internal HLOC was held constant at a low level, there was not a significant relationship between racial discrimination and snacking on sweets eating behaviors,  $\beta = -.0104$ ,  $t(227) = -.77$ , *ns*.

For the interaction plotted in Figure 2 (the internal HLOC x gender discrimination interaction on snacking on sweets eating behaviors), when gender discrimination was held constant at a high level, there was a significant and negative relationship between internal HLOC and snacking on sweets eating behaviors,  $\beta = -.32$ ,  $t(227) = -2.74$ ,  $p < .01$ . When gender discrimination was held constant at a low level, there was not a significant relationship between internal HLOC and snacking on sweets eating behaviors,  $\beta = .13$ ,  $t(227) = 1.15$ , *ns*. When internal HLOC was held constant at a high level, there was not a significant relationship between gender discrimination and snacking on sweets eating behaviors,  $\beta = -.04$ ,  $t(227) = -1.82$ , *ns*. Likewise, when internal HLOC was held constant at a low level, there was not a significant relationship between gender discrimination and snacking on sweets eating behaviors,  $\beta = .04$ ,  $t(227) = 1.79$ , *ns*.

For the interaction displayed in Figure 3 (the chance HLOC x racial discrimination interaction on snacking on sweets eating behaviors), when racial discrimination was held constant at a high level, there was not a significant relationship between chance HLOC and snacking on sweets eating behaviors,  $\beta = -.06$ ,  $t(227) = -.53$ , *ns*. When racial discrimination was held constant at a low level, there was a significant

and positive relationship between chance HLOC and snacking on sweets eating behaviors,  $\beta = .35$ ,  $t(227) = 3.06$ ,  $p < .01$ . When chance HLOC was held constant at a high level, there was not a significant relationship between racial discrimination and snacking on sweets eating behaviors,  $\beta = -.01$ ,  $t(227) = -.75$ , *ns*. However, when chance HLOC was held constant at a low level, there was a positive and significant relationship between racial discrimination and snacking on sweets eating behaviors,  $\beta = .04$ ,  $t(227) = 2.58$ ,  $p < .05$ .

## **Chapter V: DISCUSSION**

Black women experience disproportionately higher rates of overweight and obesity than do White women and die at a higher rate due to illnesses that are exacerbated by overweight and obesity (Flegal et al., 2012). Overweight and obesity result from a complex interplay of genetic, physiological, cultural, psychosocial, behavioral, socioeconomic, and environmental factors – all of which contribute to the disparities between racial groups (Blanchard, 2009; Flegal et al., 2012). This study examined the intersections of discrimination, HLOC, and eating behaviors among Black women.

As a whole, the mean scores of the eating behavior domains indicated that Black women in this study reported fewer low-fat eating habits and fewer snacking on sweets eating habits than norms, though the values were fairly comparable to other samples of Black women. It is well established that types of food and beverages consumed are related to the onset and maintenance of overweight and obesity as well as other negative diet-related health outcomes (Sutherland, 2013). Data have suggested that Blacks are less likely to eat fruits and vegetables, and less likely to report believing that their health behavior can impact health outcomes (Manuel, 2004).

Of note, nearly the entire sample of Black women reported experiencing racial (95%) and gender discrimination (98%). Findings from previous studies have been mixed in that some Black women report more exposure to racial discrimination than to gender discrimination (Greer, 2011). Others have shown more reports of gender discrimination than racial discrimination. Regardless, a link has been established between psychological and physical symptoms and the intersection of both racial and gender discrimination

(Thomas, Speight, & Witherspoon, 2008; Jackson et al., 2010; Pascoe & Smart-Richman, 2009).

At the bivariate correlation level, experiences of racial discrimination were found to be positively related to snacking on sweets eating behaviors. This result is consistent with past research that has demonstrated that stress experiences, such as discrimination, may cause individuals to gravitate towards sugary foods as a “comfort food,” which has been shown to increase an individual’s predisposition for overweight and obesity (Dallman et al., 2003). Experiences of racial discrimination did not, however, significantly relate to low-fat eating behaviors. Perhaps, this finding may be relative to racial discrimination having an impact on unhealthy behaviors but not on healthy behaviors. Research examining racial discrimination and its influence on health usually focuses on negative health behaviors as outcomes. More work is needed to explore the impact of racial discrimination on health-promoting behaviors.

Experiences of gender discrimination were not related to either snacking on sweets eating behavior or low-fat eating behavior. These findings are contrary to research that has established a link between gender discrimination and other health behaviors, such as eating behavior, smoking, and binge drinking (Zucker & Landry, 2007; Walcott-McQuigg, 1995; Stice, 1994; Lovejoy, 2001). For example, Edmonds (2010) found in a sample of college-educated Black women that high levels of stress related to racism, sexism, and workload appeared to influence the participants’ decision not to adopt health-promoting behaviors. Furthermore, researchers have suggested that discriminatory experiences, such as sexism, will have a greater negative impact on health than generic stressors because they are inherently debasing and individualized (Landrine & Klonoff,

1996). Because findings did not support study hypotheses, this inconsistency points to the need to further explore the relationship between gender discrimination and dietary behaviors.

In line with study hypotheses, internal HLOC was positively related to low-fat eating behaviors and chance HLOC was positively related to snacking on sweets eating behaviors. In this sample of women, those who believed they had control of their health were more likely to engage in low-fat eating behaviors. However, those who believed their health was a function of chance, luck, or fate were more likely to engage in unhealthy behaviors, such as eating sweets. Previous studies found the same direction of relationships for HLOC and balanced nutrition behaviors (Steptoe & Wardle, 2001; AbuSabha & Achterberg, 1997; Cohen & Azaiza, 2007). For example, Cohen and Azaiza (2007) examined the relationships between health-promoting behaviors and health locus of control in the context of cultural differences and found that regular physical activity and having a balanced nutrition were more typical of individuals with higher internal HLOC and lower external HLOC.

In the multiple regression analyses, the model predicting low-fat eating behaviors was not significant and therefore did not evince a relationship with the predictor variables of this study. For the model predicting snacking on sweets eating behavior, chance HLOC was found to uniquely predict the outcome, above and beyond the variance accounted for by internal HLOC and racial and gender discrimination. That is, holding internal HLOC, gender discrimination, and racial discrimination constant, when chance HLOC increases so does snacking on sweets eating behavior. This finding is in line with previous research demonstrating a significant and positive relationship between chance

HLOC and poor dietary behavior (Steptoe & Wardle, 2001; Wardle & Steptoe, 2003). In addition, a number of significant interactions were found between HLOC and racial and gender discrimination.

First, there was a significant interaction between internal HLOC and racial discrimination in predicting snacking on sweets eating behaviors. The interaction plot revealed that for Black women who experienced low levels of racial discrimination, there was a significant and negative relationship between internal HLOC and snacking on sweets eating behaviors. If racial discrimination is minimal or low, internal HLOC serves as a protective factor from engaging in snacking on sweets eating behaviors. Several studies have demonstrated positive associations between stronger internal HLOC and better physical health behaviors and outcomes (Wallston et al., 1978; Thornton et al., 2006). However, when racial discrimination is high, internal HLOC no longer served as a protective factor. Thus, the benefit of internal HLOC is erased when racial discrimination is experienced at high levels.

Second, there was a significant interaction between internal HLOC and gender discrimination in predicting snacking on sweets eating behaviors. The interaction plot revealed that when gender discrimination was high, there was a significant and negative relationship between internal HLOC and snacking on sweets eating behaviors. In other words, when Black women encountered high experiences of gender discrimination, their internal HLOC protected them from engaging in unhealthy eating. These results are consistent with other research examining the role of health locus of control in the relationship between stress and outcomes. In samples not specifically examining Black women, a sense of control has been shown to buffer the relationship between stress and

negative outcomes (Roddenberry & Renk, 2010; Wu, Tang, & Kwok, 2004; Carter, Mollen, & Smith, 2014) and between discrimination and negative outcomes (Cadinu, Maass, Lombardo, & Frigerio, 2006; Carter et al., 2014). As such, it appears that an internal HLOC may serve as an important resiliency factor towards positive health behaviors for both the general population and for Black women who experience gender discrimination. In addition, when there were experiences of low levels of gender discrimination, the relationship between internal HLOC and snacking on sweets disappeared. This finding is unexpected and contrary to research revealing an important role of internal HLOC in health behaviors. In examining the bivariate correlations, it is clear that internal HLOC was not related to snacking on sweets eating behaviors. Perhaps internal HLOC is not related to health-compromising behaviors except when stress from gender discrimination is present. It may be the case that the study participants' sense of control was heightened when they experienced gender discrimination and were able to take an action-oriented rather than a passive-oriented approach to their health. More research into the role of internal HLOC in the relationship between gender discrimination and health behaviors is warranted.

Finally, there was a significant interaction between chance HLOC and racial discrimination in predicting snacking on sweets eating behaviors. When racial discrimination was low, more chance HLOC translated into more snacking on sweets eating behaviors. However, when racial discrimination was high, there was not a difference in snacking on sweets eating behaviors based on chance HLOC. Moreover, regardless of experiences of racial discrimination, having a chance HLOC was related to more unhealthy eating behaviors. These findings are consistent with research that has



reported that external HLOC is associated with undesirable health behaviors, such as poor medication adherence (Cvengros, Christensen, & Lawton, 2004) as well as poor self-rated health (Leinsalu, 2002) and mortality (Krause & Shaw, 2000).

Given the multitude of factors impacting Black women's health, this study provides several contributions to the existing literature. Perhaps the most important contribution is the inclusion of a sample comprised entirely of Black women. Findings represent a population that has traditionally been overlooked in medical and psychological research (Baker et al., 2008). As a result, little is known of their unique needs and concerns regarding experiences of both racial and gender discrimination and how these involvements relate to their health. More important, this study provided data on variables that have not been thoroughly examined in Black women (e.g., gender discrimination, health locus of control, eating behaviors). The ability to generalize these findings can be expanded as future studies validate these results among women from various racial backgrounds. Lastly, this study examined gender and racial discrimination concomitantly, filling an important gap in the literature.

### **Limitations**

The current findings should be interpreted with caution given the limitations of this study. A cross-sectional design was used in this investigation, and therefore the effects of discrimination on dietary behavior were not examined over multiple time periods. The participants came from a convenience and snowball sample. Possibly, there were differences in responses between individuals who volunteered to participate in this study and individuals who could have been chosen from a random sample of the population. Another limitation of this study is that it relied solely on self-report measures,

which can encourage socially-desirable responses, be subjected to recall bias, or be influenced by participant personality traits (Forsyth et al., 2014). The survey was delivered online, not allowing the principal investigator to control the setting in which the survey was taken. Moreover, participants were encouraged to share the survey Web link with other potential participants; thus, the researcher was unable to discern from the sample the percentages of participants who were recruited from the university versus the community, therefore not allowing for statistical differences to be determined within the sample based on recruitment stratification.

Also, while the EBPQ captures several different eating behaviors, this study only focused on low-fat eating and snacking on sweets, and thus all possible eating behaviors were not examined. Low-fat and snacking on sweets eating behaviors were chosen because research has suggested that when individuals are under stressful conditions, they gravitate toward a range of high-fat and sweet foods and away from healthy food choices, such as low-fat food choices (Blundell & Macdiarmid, 1997; Lawton et al., 1993). Next, it should be noted that this was an all female sample, comprised of a single race group. These results may not adequately generalize to men, other race groups, or individuals from other geographic areas. Furthermore, participants were young (i.e., median age of 31-35 years old), highly educated (i.e., 48% had a master's degree), and reported mid- to high-income levels (e.g., 45% reported incomes over \$40,000), which calls into question the generalizability of the results. This demographic information led to the sample not being fully representative of the population under study and is likely a byproduct of the chosen sampling strategy. As noted, participants were recruited by non-probability sampling techniques (i.e., convenience and snowball sampling), which contributed to the

over-representation of individuals who were young, educated and with mid-to-high incomes and the under-representation of individuals who were older, less educated and from lower incomes within the sample. Future studies should include Black women of diverse age groups and socioeconomic statuses to determine whether similar results would be found. Lastly, this study did not ask study participants to provide information about their weight, height, body mass index (BMI), or health status, all of which may have been helpful in understanding how and in what ways their dietary behaviors are directly affecting them.

### **Implications and Directions for Future Research**

The findings of this study underscore the importance of continued research on health promotion and disease prevention in samples of Black women. The study also demonstrates the value of research focusing on within-group factors impacting a single population. Specifically, this study was able to provide unique data on the racial and gender experiences of Black women. This study examined two domains of discrimination and their associations with health behaviors (i.e., eating habits), whereas prior studies typically considered only race-based discrimination. For Black women, their experiences of discrimination are two-fold and difficult to disentangle, in that they experience negative sexist events because they are a woman and negative racist events because they are Black (Landry & Mercurio, 2009). Therefore, it is critical for future research to examine the role of both domains of discrimination to elucidate the extent to which discrimination is a social determinant of health behavior and health disparities.

It should be noted that this study did find that self-reported perceptions of racial discrimination were positively associated with maladaptive eating behaviors in this

sample of Black women. These results add to the body of evidence suggesting that experiences of racism may contribute to the excess burden of obesity observed in Black women (Tull et al., 1999; Vines et al., 2007) and underscore the public health importance of continuing antidiscrimination efforts in this country and worldwide (Cozier et al., 2009). For psychologists and health practitioners working with Black women, it is important to normalize psychological and behavioral responses as expected and not to treat them as pathological (Pieterse & Carter, 2010), all the while helping Black women to develop adaptive coping resources. Researchers should continue to attempt to disentangle the cultural elements and individual characteristics responsible for the high obesity rates among Black women.

In addition, ideally, future research should obtain self-monitored and/or externally monitored data on dietary behaviors. There is also a need for longitudinal studies that specifically examine Black women's weight and dietary concerns, as well as to assess their attitudinal and behavioral long-term changes related to weight loss, weight prevention, and maintenance strategies (Sutherland, 2013). A clearer understanding is needed regarding the sources of eating among Black women, and on effective interventions to reduce stress-related eating (Sims et al., 2008). It is imperative that future studies on risk factors, such as maladaptive eating, that perpetuate overweight and obesity issues among Black women adopt a more holistic approach by examining cultural, biological, environmental, familial, psychological, and pharmacological, among other systemic and individual factors (Sutherland, 2013). Such a comprehensive approach has implications for health promotion and disease prevention specific to this population of women (Satcher & Higginbotham, 2008). Finally, given the findings of this study and

because they are a sample that is likely discounted, it is recommended that future research focus on young, affluent Black women to better understand their health choices and ways in which they can make positive health changes despite experiences of racial and gender discrimination.

The results of this study may have important implications. The fact that the women in this study endorsed racial and gender discrimination further validates the need for psychologists' preventative and remedial work with Black women. It is critical to understand and acknowledge that being both Black and female in a society that values neither presents unique challenges (Thomas et al., 2008). It will be important for Black women to learn how to cope effectively with the pain associated with racist and sexist discriminatory acts. Further research in this area is warranted to further understand how acts of discrimination influences their health. More important, these findings shed light into the duty of laypersons and professionals to work to intervene through educational efforts towards the prevention of racist and sexist attitudes and stereotypes in society. As such, psychologists are called to be more active in challenging systemic oppression that directly and indirectly influences the lives of Black women and people of color in general (Dailey, 2008).

In terms of educational and preventative avenues, there are also several avenues by which action can be taken (Manuel, 2004). For example, counseling health psychologists can maximize the therapeutic process by being aware of possible relationships between racial and gender discrimination and various personality characteristics, such as health locus of control. It may helpful for clinicians to encourage different stress-reduction techniques that may provide relief as efficiently and effectively

as eating comfort foods (Hayman, McIntyre, & Abbey, 2015). Clinicians might also suggest alternative, healthier food choices that would provide stress relief/ reduction without the dense calories (Hayman et al., 2015). Larger, public health activities involve not only the importance of awareness of and working towards eliminating racial and gender discrimination, but also in providing education on how to sustain a healthy, well-balanced, stress-reducing diet (Hayman et al., 2015).

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Table 1

Frequencies and Percentages of Sociodemographic Characteristics ( $N = 227$ )

Characteristic	Frequency	Percentage
Age		
18-20	2	.9
21-25	15	6.6
26-30	49	21.6
31-35	55	24.2
36-40	27	11.9
41-45	30	13.2
46-50	19	8.4
51-55	11	4.8
56-60	10	4.4
61-64	9	4.0
Education		
<12th grade	4	1.8
12th grade/GED	8	3.5
A.A./A.S.	8	3.5
Certificate Program	9	4.0
Bachelor's	56	24.7
Master's	108	47.6
Doctorate	34	15.0

## Annual Household Income

<\$10,000	8	3.5
\$10,000-\$19,999	11	4.8
\$20,000-\$29,999	22	9.7
\$30,000-\$39,999	29	12.8
\$40,000-\$49,999	33	14.5
\$50,000-\$59,999	28	12.3
\$60,000-\$69,999	16	7.0
\$70,000-\$79,999	11	4.8
\$80,000-\$89,999	13	5.7
\$90,000-\$100,000	15	6.6
>\$100,000	41	18.1

## Employment Status

Employed	166	73.1
Unemployed	3	1.3
Retired	7	3.1
Student	39	17.2
Receiving SSI or SSD	1	0.4
Welfare	1	0.4
Other	10	4.4

## Relationship Status

Single	113	49.8
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Married	72	31.7
Married, but separated	6	2.6
Living with significant other	19	8.4
Divorced	16	7.0
Widowed	1	0.4

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Table 2

*Correlations matrix, Means, Standard Deviations, and Ranges for all Measures*

Measure	1	2	3	4	5	6	<i>M</i>	<i>SD</i>	Range
1. Internal	----						26.65	5.49	6-36
2. Chance	.13*	----					13.91	4.75	6-36
3. SRE	.08	.08	----				83.64	36.91	18-108
4. SSE	.08	.11	.66**	----			84.34	32.78	20-120
5. Low-fat eating	.15*	-.02	-.07	-.07	----		32.77	8.21	14-70
6. Sweets	-.08	.14*	.13*	.10	-.15*	----	15.51	4.75	6-30

*Note.*  $N = 227$ . For all scales, higher scores are indicative of more extreme responding in the direction of the construct assessed. Internal and Chance = Multidimensional Health Locus of Control subscales; SRE = Schedule of Racist Events; SSE = Schedule of Sexist Events; Low-fat eating = Eating Behavior Pattern Questionnaire – Low-fat Eating subscale; Sweets = Eating Behavior Pattern Questionnaire – Snacking on Sweets subscale.

\* $p < .05$ . \*\* $p < .01$ .

Table 3

*Block Entry Moderated Regression Equation for the Prediction of Low-Fat Eating Behaviors*

Predictor	<i>B</i>	<i>SE B</i>	$\beta$	<i>t</i>	$R^2$	$\Delta R^2$	$\Delta F$
Block 1					.01	.01	.65
Constant	32.77	.55		60.05			
SRE	-.01	.02	-.06	-.58			
SSE	-.02	.02	-.06	-.36			
Block 2					.03	.02	2.73
Constant	32.77	.54		60.52			
SRE	-.01	.02	-.06	-.66			
SSE	-.01	.02	-.04	-.41			
Internal HLOC	.22	.10	.15	2.33*			
Chance HLOC	-.06	.12	-.03	-.42			
Block 3					.04	.01	.41
Constant	32.77	.55		59.66			
SRE	-.01	.02	-.06	-.63			
SSE	-.02	.02	-.06	-.68			
Internal HLOC	.22	.10	.15	2.09			
Chance HLOC	-.06	.12	-.03	-.49			
Internal x SRE	.00	.00	.02	.21			
Internal x SSE	-.00	.01	-.09	-.85			
Chance x SRE	-.00	.00	-.03	-.34			
Chance x SSE	.00	.01	.08	.80			

Overall  $F(8, 218) = 1.04, p > .05$

*Note.*  $N = 227$ . This equation was run with covariates (i.e., age, education, and income) and the pattern of results did not change. SRE = Schedule of Racist Events; SSE = Schedule of Sexist Events; Internal HLOC and Chance HLOC = Multidimensional Health Locus of Control subscales.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .



Table 4

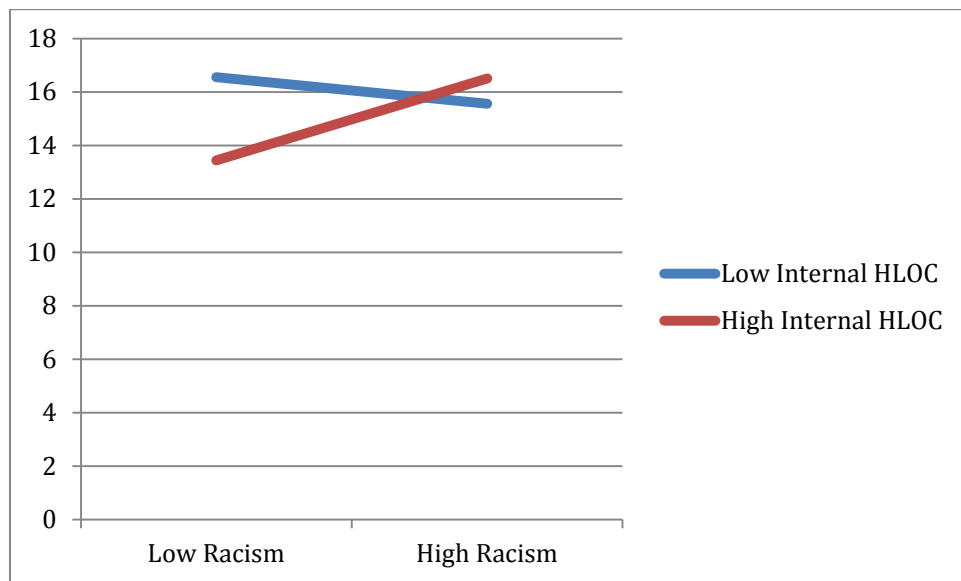
*Block Entry Moderated Regression Equation for the Prediction of Snacking on Sweets Eating Behaviors*

Predictor	<i>B</i>	<i>SE B</i>	$\beta$	<i>t</i>	$R^2$	$\Delta R^2$	$\Delta F$
Block 1					.02	.02	1.93
Constant	15.51	.31		49.40			
SRE	.01	.01	.11	1.34			
SSE	-.00	.01	-.02	.19			
Block 2					.05	.03	3.37*
Constant	15.51	.31		49.92			
SRE	.02	.01	.12	1.39			
SSE	.00	.01	.01	.08			
Internal HLOC	-.10	.06	-.11	-1.66			
Chance HLOC	.15	.07	.15	2.18*			
Block 3					.08	.04	2.11
Constant	15.51	.31		49.99			
SRE	.01	.01	.11	1.21			
SSE	-.00	.01	-.02	-.20			
Internal HLOC	-.10	.06	-.11	-1.68			
Chance HLOC	.15	.07	.15	2.19*			
Internal x SRE	.01	.00	.21	1.98*			
Internal x SSE	-.01	.00	-.24	-2.30*			
Chance x SRE	-.01	.00	-.21	-2.27*			
Chance x SSE	.01	.00	.18	1.89			

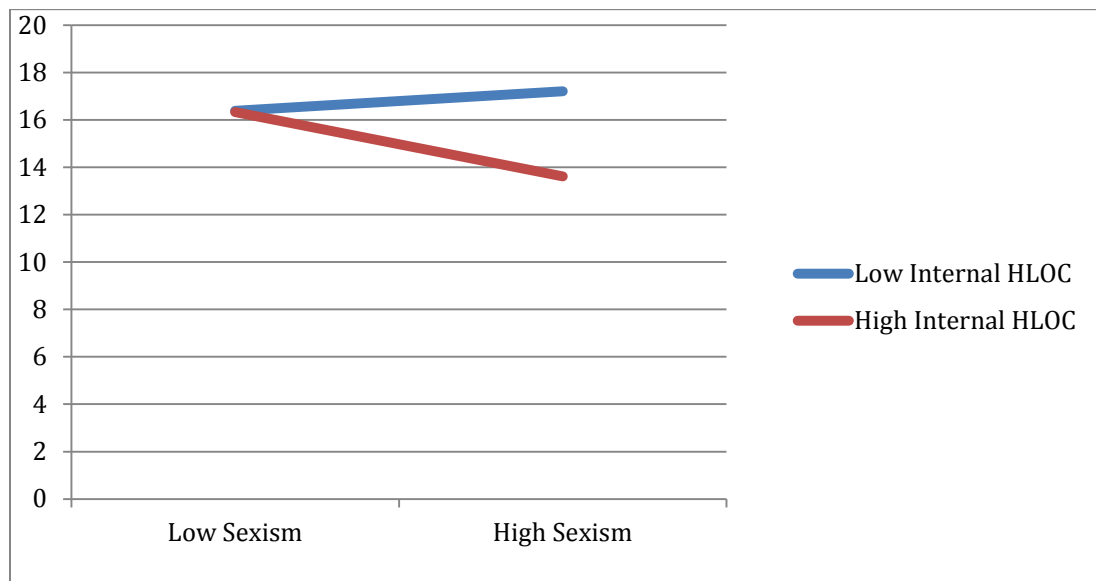
Overall  $F(8, 218) = 2.42, p < .05$

*Note.*  $N = 227$ . SRE = Schedule of Racist Events; SSE = Schedule of Sexist Events; Internal HLOC and Chance HLOC = Multidimensional Health Locus of Control subscales.

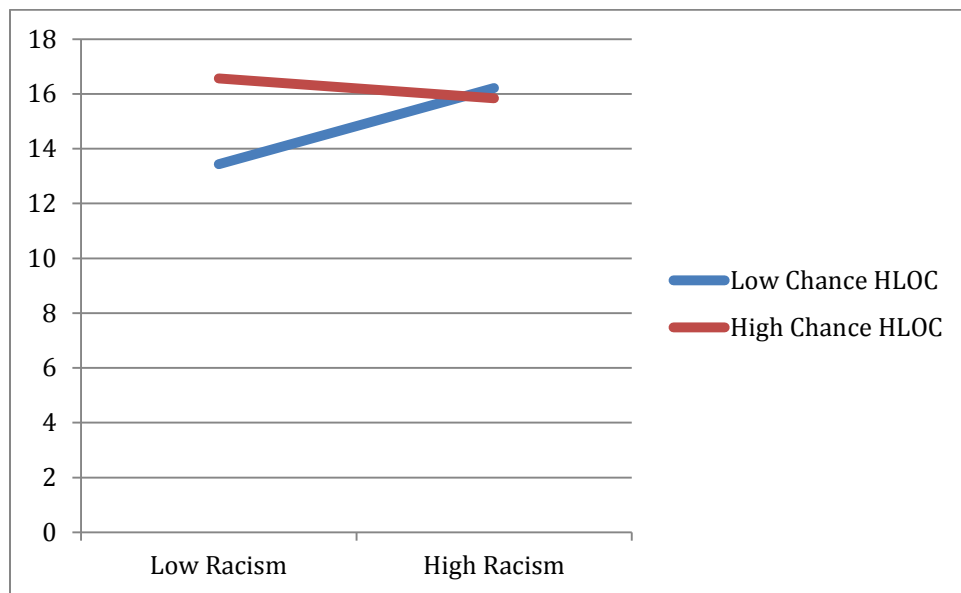
\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .



*Figure 1.* Interaction of racial discrimination and internal HLOC on snacking on sweets eating behaviors.



*Figure 2.* Interaction of gender discrimination and internal HLOC on snacking on sweets eating behaviors.



*Figure 3.* Interaction of racial discrimination and chance HLOC on snacking on sweets eating behaviors.

Appendix A  
**University of Houston**  
**Consent to Participate in Research**

**Project Title**

Perceived Discrimination and Stress Among Black Women: An Examination of Health  
 Locus of Control as a Moderator Variable for Maladaptive Eating Behaviors

You are invited to participate in a research project conducted by Cashuna “Shun” Huddleston, M.A., a doctoral student in University of Houston’s Department of Educational Psychology, Counseling Psychology doctoral program. This project is being supervised by Dr. Nicole Coleman in the University of Houston’s Department of Educational Psychology, Counseling Psychology doctoral program (713-743- 8392). The purpose of the study is to expand the body of research on stress, coping, and health in Black women. All of this study’s research measures involve self-report questionnaires that will be presented online through this project website. There are no right or wrong responses to the items on the measures. To be eligible to participate in this study, you must be female, self-identify racially as Black/African American, and between the ages of 18-64.

**Non-participation:**

Your participation is voluntary and you may refuse to participate or withdraw at any time without penalty or loss of benefits to which you are otherwise entitled. You may also refuse to answer any question. Your decision to participate or not or to withdraw your participation will have no effect on your standing.

**Procedures:**

A total of 250 Black women across the United States will be asked to participate in this project. Participants will be asked to complete a demographics questionnaire as well as items asking questions about your general stress, experiences of discrimination, health locus of control, and eating behaviors. The survey will take no more than 20-25 minutes to complete. Sensitive questions of a derogatory nature are included in these surveys (e.g., “*How many times have you been called a sexist name like bitch, cunt, chick, or other names?*”).

**Confidentiality:**

Your participation in this project is confidential and your responses will remain anonymous.

**Risks/Discomforts:**

There are no foreseeable risks to your participation in this study.

**Benefits:**

You may benefit by participating in this study through increased awareness and self-understanding. You will also be contributing to knowledge that will help researchers further understand the complexities of stress and how it may impact Black women's health.

**Publication Statement:**

The results of this project may be published in a professional and/or scientific journal. They may also be used for educational purposes or professional presentations. However, no individual participant will be identified.

**COMPENSATION**

There is no direct compensation for participating in this pilot study. However, participants will have the opportunity to enter their information (e.g., email address) into a raffle to receive one of ten \$10 Visa gift cards after the completion of the survey. Also, participants from SONA and classroom participants may be eligible to receive either extra credit or research credit, depending on the course in which they are enrolled, in addition to the remuneration from the raffle.

**Subject Rights:**

By giving consent:

- I understand that informed consent is required of all persons participating in this project.
- I understand all procedures and they have been satisfactorily explained.
- I understand any risks and/or discomforts and they have been explained.
- I understand that if I have any questions, I may contact Cashuna Huddleston, M.A. at [cthuddleston@uh.edu](mailto:cthuddleston@uh.edu) and/or Dr. Nicole Coleman, faculty advisor, at [mncoleman@uh.edu](mailto:mncoleman@uh.edu).
- I understand that I may refuse to participate or can stop my participation in this project at any time before or during this project. I may also refuse to answer any question.
- I understand that all information that is obtained in connection with this project will remain confidential and anonymous. Information gained from this study may be released to no one other than the principal investigator. The results may be

published in scientific journals, professional publications, or educational presentations without subject's identifying information.

- I UNDERSTAND THAT ANY QUESTIONS REGARDING MY RIGHTS AS A RESEARCH SUBJECT MAY BE ADDRESSED TO THE UNIVERSITY OF HOUSTON COMMITTEE FOR THE PROTECTION OF HUMAN SUBJECTS (713-743-9204). ALL RESEARCH PROJECTS THAT ARE CARRIED OUT BY INVESTIGATORS AT THE UNIVERSITY OF HOUSTON ARE GOVERNED BY REQUIREMENTS OF THE UNIVERSITY AND THE FEDERAL GOVERNMENT.

## Appendix B

*Demographic Information*

Please indicate which response best describes you

1. What is your gender?
  - a. \_\_\_\_\_Female
  - b. \_\_\_\_\_Male
2. My age is:
  - a. \_\_\_\_\_ 18-19      b. \_\_\_\_\_ 20-25      c. \_\_\_\_\_ 26-30      d. \_\_\_\_\_ 31-35      e. \_\_\_\_\_ 36-40      f. \_\_\_\_\_ 41-45      g. \_\_\_\_\_ 46-50      h. \_\_\_\_\_ 51-55      i. \_\_\_\_\_ 56-60      j. \_\_\_\_\_ 61-64
3. What is your race/ethnicity?
  - A. African
  - B. African American
  - C. Bi- racial
  - D. Other
4. I am currently:
  - a. \_\_\_\_\_ Single      b. \_\_\_\_\_Married      c. \_\_\_\_\_ Separated      d. \_\_\_\_\_ Divorced      e. \_\_\_\_\_ Widowed      f. \_\_\_\_\_ Living with Significant Other
5. What is the highest level of education completed?
  - A. < 12<sup>th</sup> grade
  - B. 12<sup>th</sup> grade/GED
  - C. Certificate Program
  - D. A.A./A.S.
  - E. Bachelor's degree
  - F. Master's degree



G. Doctoral degree (e.g., Ed.D., Ph.D., M.D., D.D.S., JD, etc.)

6. I am currently:
- A. Employed
  - B. Unemployed
  - C. Retired
  - D. A Student
  - E. Receiving Social Security Income or Disability
  - F. On Welfare
  - G. Receiving Worker's Compensation
  - H. Other (please explain \_\_\_\_\_)
7. What is your annual household income?
- A. < \$10,000
  - B. \$10,000- \$19,999
  - C. \$20,000- \$29, 999
  - D. \$30,000- \$39,999
  - E. \$40,000- \$49,999
  - F. \$50,000 - \$59,999
  - G. \$60,000 - \$69,999
  - H. \$70,000 - \$79,999
  - I. \$80,000 - \$89,999
  - J. \$90,000 - \$100,000
  - K. > \$100,000

## Appendix C

### **Recruitment Email and Post**

Hello,

My name is Shun Huddleston, and I am a doctoral candidate in the Counseling Psychology program at the University of Houston. I am recruiting Black women to participate in my dissertation research study that explores how stress impacts Black women's health. The only requirement for participation is that you are female, self-identify racially as Black/African American, and between the ages of 18-64.

Participation is completely voluntary and you may withdraw at any time. It will take you no more than 20-25 minutes to complete this survey. You will never be asked to provide your name and identification codes will be used to ensure confidentiality.

Thank you so much for your time, consideration and support! Also, if you know other Black women that also qualify to participate in the study, please pass it along! It will be greatly appreciated! If you have any questions, comments or concerns please feel free to contact me at [cthuddleston@uh.edu](mailto:cthuddleston@uh.edu).

\*\*\*\*Click link to take survey \*\*\*\*

<http://www.surveygizmo.com/s3/1750735/The-Stress-Health-in-Black-Women-Study>