



# The association of perceived stress, contextualized stress, and emotional eating with body mass index in college-aged Black women



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## ABSTRACT

A growing body of literature supports the association between adverse stress experiences and health inequities, including obesity, among African American/Black women. Adverse stress experiences can contribute to poor appetite regulation, increased food intake, emotional eating, binge eating, and sedentary behavior, all of which can contribute to weight gain and obesity. Most research studies concerning the effect of psychological stress on eating behaviors have not examined the unique stress experience, body composition, and eating behaviors of African American/Black women. Even fewer studies have examined these constructs among Black female college students, who have an increased prevalence of overweight and obesity compared to their counterparts. Therefore, the aim of the current study is to examine the associations among emotional eating, perceived stress, contextualized stress, and BMI in African American female college students. All participants identified as African American or Black ( $N = 99$ ). The mean age of the sample was 19.4 years ( $SD = 1.80$ ). A statistically significant eating behavior patterns  $\times$  perceived stress interaction was evident for body mass index (BMI) ( $\beta = 0.036$ ,  $S.E. = .0118$ ,  $p < .01$ ). In addition, a statistically significant eating behavior patterns  $\times$  contextualized stress interaction was observed for BMI ( $\beta = 0.007$ ,  $S.E. = .0027$ ,  $p = .015$ ). Findings from this study demonstrate that the stress experience interacts with emotional eating to influence BMI. Based on these findings, culturally relevant interventions that target the unique stress experience and eating behavior patterns of young African American women are warranted.

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## 1. Introduction

A growing body of research suggests that health inequities, including obesity, among African American women are related to adverse stress experiences (Geronimus et al., 2006; Woods-Giscombe & Lobel, 2008). Psychological stress can contribute to increased food intake, emotional eating, binge eating, lack of exercise, and poor appetite regulation, all of which are factors associated with weight gain and obesity (Sims et al., 2008). In 2010, African American women were 70% more likely to be obese than European American women (Office of Minority Health, 2012). Obesity often leads to serious chronic health conditions, disability, and psychological distress (Yale Rudd Center, 2012). In response to the negative health and economic effects of obesity, researchers have undertaken studies aimed at understanding and addressing this epidemic (Dallman, 2009; Garg et al., 2007; Sims et al., 2008).

### 1.1. Perceived stress

From a learning perspective, stress can lead to obesity by the reward system and feedback (Farag et al., 2008; Adam & Epel, 2007). For example, Farag et al. (2008) posits that an association is made between feeling stressed and feeling better after indulging in foods high in sugar and fat. This learned association, when reinforced through synaptic plasticity, can turn into habits that are expressed with little conscious awareness. Through this learned association individuals may begin to use food to alleviate minor upsets, tiredness, and chronic low-grade stress. The process by which stress leads to abnormal eating behaviors is becoming better understood and various stressors have been implicated in exacerbating this process.

The assertion that overweight and obese individuals are more likely to display unhealthy eating patterns while stressed has not been consistent (Dallman, 2009). For instance, Nguyen-Rodriguez et al. (2008) found that normal weight individuals displayed greater negative eating patterns than overweight and obese individuals. Differences in results may have been a function of true differences, of self-report measures or of social desirability among overweight and obese participants. Adding to the literature on which individuals will alter eating habits when stressed, recent studies have examined stress-induced eating in

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restrained versus unrestrained individuals and males versus females (Dallman, 2009; Nguyen-Rodriguez et al., 2008). These studies have found that being female, overweight, or scoring high on dietary restraint are all predictors of eating more during stress. The level of stress experienced by African American women may have implications on obesity and obesity-related illnesses.

### 1.2. Contextualized stress

To fully understand the impact of stress on obesity in African American women, stress must be defined in culturally appropriate terms (Woods-Giscombé & Lobel, 2008). Moreover, an understanding of how both race and gender impact the lives of these women is crucial (Jackson et al., 2005; Thomas & González-Prendes, 2009). Race-related stress has been acknowledged as a key factor that specifically compounds African Americans' vulnerability to stress-related illness and health disparities, and a number of studies indicate that African Americans perceive greater amounts of race-related stress than do other people of color and European Americans (Clark et al., 1999; Harrell, 2000; Jackson et al., 2005; Sanders Thompson, 2002; Utsey, 1999; Utsey et al., 2002; Williams & Mohammed, 2009; Woods-Giscombé & Lobel, 2008).

In addition to race-related stress, gendered stress is also associated with psychological and physiological responses (Jackson et al., 2005). Race and gender identities are closely related, and both influence interpersonal engagement, status, power, and consequently stress exposure and appraisal (Woods-Giscombé & Lobel, 2008). Previous research has shown that racism is correlated with sexism and with perceived stress in African American women (Woods-Giscombé & Lobel, 2008). In a sample of 160 African American women representing a wide age range, Szymanski and Stewart (2010) found that frequency of perceived experiences of racist events was positively correlated with perceived frequency of sexist events. Gender-related stress has been operationalized by assessing sexual discrimination and harassment in addition to stressors related to physical and sexual assault and stressors related to family and reproductive health (Woods-Giscombé & Lobel, 2008). The interaction of racism and sexism is referred to in the literature as ethgender prejudice/racism or contextualized stress (Woods-Giscombé & Lobel, 2008; Jackson et al., 2005). Theorists have noted that the analysis of racism and sexism taken out of an interactionist context is likely to distort the lived experiences of African American women (Jackson et al., 2005).

The concept of contextualized stress grew out of the need not only to assess racism and sexism but also to understand the multiplicative impact that these two constructs have on African American women (Jackson et al., 2005). In order to elucidate the stress experience of African American women, a comprehensive understanding of the interplay between race and gender is crucial. Few studies have examined the effects of contextualized stress, though this form of stress may be an important factor in emotional eating.

### 1.3. Emotional eating

Previous research has shown that African American women are more prone to stress-related eating than African American men (Fowler-Brown et al., 2009; Sims et al., 2008). There is a growing body of research examining the eating behaviors of African American women (Fowler-Brown et al., 2009; Harrington et al., 2006; Harrington et al., 2010). A study conducted by Mwendwa et al. (2011) examined the relationship among body mass index (BMI), emotional and behavioral coping responses, and perceived racism among African American women. The results showed no association between BMI and emotional responses to perceived racism. Moreover, there was no significant association between higher BMI and perceived daily stress. However, higher BMI was found to be related to greater behavioral coping responses to perceived racism.

The literature suggests that the behavioral coping mechanism of emotional eating in response to perceived stress may be a potential factor contributing to obesity in African American women (Sims et al., 2008; Fowler-Brown et al., 2009). Emotional eating involves the consumption of foods, especially those that are traditionally high in sugar and fat, during times of increased stress. The concept of emotional eating is derived from the psychosomatic theory (Adriaanse et al., 2009; Bruch, 1964). According to the psychosomatic theory, emotional eaters are unable to differentiate hunger from the physiological state accompanying negative emotions, like stress (Adriaanse et al., 2009). Researchers such as Sims et al. (2008) have conducted studies testing the psychosomatic theory of emotional eating and found that greater perceived stress was associated with unhealthy eating behaviors such as emotional eating and haphazard meal planning. Although BMI was not a statistically significant moderator of the relationship between stress and emotional eating in this study, more research is needed to examine the association between weight, stress, and eating behaviors. Additionally, the role of contextualized stress should be assessed to better understand the influence of race and gender-related stress on unhealthy eating behaviors. Most studies concerning the effect of psychological stress on eating behaviors have not examined the unique stress experience, body composition, and eating behaviors of African American women. African American women suffer from obesity at a much higher rate than other groups, and research on emotional eating may lead to the development of interventions targeting specific forms of stress and coping styles to prevent obesity and obesity-related disparities in this group. Therefore, the aim of the current study is to examine the associations among emotional eating, perceived stress, contextualized stress, and BMI in African American female college students. We tested the following research questions: a) Is BMI associated with perceived stress, contextualized stress, or emotional eating? B) Does an interaction between emotional eating and perceived or contextualized stress predict BMI?

## 2. Materials and methods

### 2.1. Participants

The sample consisted of 104 students who attended a historically Black university in the southeastern United States. The study received IRB approval, and participants were recruited from introductory courses in psychology and health education. Eligibility criteria included self-identification as an African American female between the ages of 18 and 30. Students received extra credit points from their professors for participating in the study. Students who did not meet the inclusion criteria or chose not to participate received a comparable extra credit assignment. Participants were given informed consent and then presented with the questionnaire packet presented in the order listed below.

### 2.2. Measures

#### 2.2.1. Demographic questionnaire

Participants were asked to indicate their age and college classification (e.g., freshman, sophomore, junior, senior). The demographic questions were used to conduct descriptive analyses of the sample.

#### 2.2.2. Body mass index

Self-reported height and weight were used to determine BMI. BMI was calculated using the standard calculation of weight in kilograms divided by height in meters squared ( $\text{kg}/\text{m}^2$ ). Self-report is an acceptable method for determining BMI (Bowman & Delucia, 1992).

#### 2.2.3. Contextualized stress

The Jackson Hogue Phillips Contextualized Stress Measure (JHP) was developed to measure racial and gender stress for African American women (Jackson et al., 2005). This validated measure is the product of

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