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PERCEIVED RACIAL DISCRIMINATION AND ITS ASSOCIATION TO UNHEALTHY CONSUMPTION AND OBESITY

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PERCEIVED RACIAL DISCRIMINATION AND ITS ASSOCIATION TO UNHEALTHY CONSUMPTION AND OBESITY

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ABSTRACT

PERCEIVED RACIAL DISCRIMINATION AND ITS ASSOCIATION TO UNHEALTHY CONSUMPTION AND OBESITY

Julie Kittleman

The aim of this study is to test the hypothesis that both recent and lifetime racial discrimination along with discrimination subscales (social exclusion, work discrimination, stigmatization, and threat or physical harassment) is linked to unhealthy food consumption and health habits. Discrimination has been identified as a possible risk factor for unhealthy food consumption. Research has not yet clearly concluded if unhealthy consumption is a function of recent or chronic exposure to discrimination, the specific type of discrimination or if the effects of discrimination are independent of other life stressors such as neighborhood poverty and stress. Participants (n = 142) were recruited from a hospital serving a low-income and ethnically diverse neighborhood. Results showed that the effects of past week discrimination had a positive association to healthy and unhealthy food consumption. In contrast, lifetime discrimination was positively associated with unhealthy but not healthy food consumption. Only threat or physical harassment revealed a position association to healthy consumption. The results for past week discrimination remained significant even when controlling for demographic, socioeconomic and life stress variables. Our results indicated that there was no association between lifetime or recent discrimination with BMI levels indicating no association to obesity.

The data suggest that perceived racial discrimination, independent of other stressors, is associated with unhealthy food consumption, but the effects are not consistent across all types of discrimination.

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INTRODUCTION

The United States is currently facing an obesity epidemic. While a typical or healthy body mass index (BMI) is between 18 and 25, obesity is defined as having a BMI of 30 or more (Cozier, 2014; Sutin, 2016). From 2015-2016, in the United States alone 93.3 million adults (39.8%) were considered obese, with 17.8 million of those adults (7.6%) being considered severely obese (BMI over 35) (Hales, 2018; Hunte, 2011). The overall prevalence of obesity is higher among non-Hispanic black (46.8%) and Hispanic (47.0%) adults than among non-Hispanic white adults (37.9%) (CDC, 2017; Hales, Carroll, Fryar, & Ogden, 2017). These statistics are extremely problematic because obesity is one of the most important risk factors for chronic diseases such as cardiovascular disease and cancer (Cozier, 2014).

Eating patterns and dietary behavior are associated with risk for obesity and overall health (health.gov, 2019). A healthy diet typically consists of fruits, vegetables, whole grains, low-fat dairy products, and lean meats (CDC, 2019), unhealthy consumption typically consists of foods that are fatty and/or high in sugar or salt, red meats, and drinks such as soda or alcohol (USDA, 2019). Typical American adults eat less than the recommended amounts of healthy foods and exceed the intake amount for sodium, sugar, and saturated fats (CDC, 2019). About 90% of individuals in the United States consume increased levels of sodium and more than the recommended 10% of calories per day from sugars and saturated fats (CDC, 2019). Red meat consumption has doubled to 10 ounces daily when the recommended consumption is 5-6.5 ounces daily (health.gov, 2019). Around 80% of individuals report eating fast/fried foods at least once

per week. (Zagorsky, 2017). Unhealthy consumption is a major risk factor that can lead to obesity (Cozier, 2014).

Discrimination has been identified as a possible risk factor for both obesity and unhealthy food consumption. Racial discrimination is defined as the process by which an individual, or group of individuals, are treated unfairly due in part to their membership of a socially defined group such as race (Stock et al, 2011; Metzger et al, 2018; Yang et al. 2018; Ong et al. 2009). The term *perceived* racial discrimination refers to self-reported perceptions of exposure to race-based maltreatment.

Discrimination can come in many forms. Interpersonal discrimination is the type of discrimination that typically occurs between individuals and is defined as the action toward others based on personal attributes, such as race/ethnicity (Hunte, 2011). Examples of racial discrimination include verbal abuse, exclusion of an individual, and in more serious cases can include hate crimes such as physical violence motivated based on prejudice against a racial group (Boynton et al. 2013). Institutional discrimination, on the other hand, is a socially structured phenomenon that is justified by the ideals/norms within that society (Johnson et al. 2012) and typically occurs between a large organization and multiple people in a group.

The present study aims to understand perceived interpersonal discrimination and its association to food consumption and obesity. Specifically, this thesis examines the ostracism that individuals experience because of race or ethnicity and how that can affect daily life choices such as food consumption.

Relationship Between Discrimination and Obesity

Many individuals who report higher levels of discrimination belong to minority groups such as African Americans, Latinos, and Native Americans (Gilbert & Zemore, 2016) and are also more likely to have obesity or other obesity related diseases than Caucasian individuals (Sutin, 2016). Approximately half the population of African American women suffer from obesity, which is projected to increase to 70% by 2020 (Cozier, 2014).

Racial discrimination is a profoundly stressful psychological and social experience – which is experienced chronically and frequently by minorities of all ages (Boynton et al. 2013). Past researchers have studied the relationship between discrimination to obesity and food consumption. In studies of discrimination and obesity, investigators have used many different research approaches. The discrimination-related predictors included: institutional segregation (Moore & Cunningham, 2012; Sutin et al., 2016), residential segregation (Cozier et al., 2014), lifetime discrimination (Johnson et al., 2012; Cozier et al., 2014; Hunte, 2011), and everyday discrimination (Cozier et., 2014; Johnson et al., 2012; Coleman et al., 2019;Vines et al., 2007). Outcome variables included BMI over 30 (Moore & Cunningham, 2012; Johnson et al., 2012; Cozier et al., 2014; Coleman et al., 2019), waist circumference (Hunte, 2011) or waist to hip ratio (Vines et al., 2007).

Most studies of the relations of discrimination to obesity have used cross-sectional analyses (Johnson et al. 2012; Coleman, 2019; Cozier, 2014; Moore & Cunningham, 2012; Sutin et al., 2016; Vines et al., 2007), although some have employed longitudinal analyses (Hunte, 2011, Cozier, 2014; Coleman, 2019). Most samples were

convenience samples (Moore & Cunningham, 2012; Johnson et al., 2012; Hunte, 2011; Vines et al., 2007) with some national samples (Sutin et al., 2016). Studies included participants of all races and genders (Moore & Cunningham, 2012), or focused on a certain race, typically African Americans (Sutin et al., 2016), or participants of a certain race and gender (i.e. just women, fathers and sons, etc.) (Coleman et al., 2019; Johnson et al., 2012; Cozier, 2014; Vines et al., 2007). All data on discrimination and consumption variables were collected using self-report methods (Moore & Cunningham, 2012; Johnson et al. 2012; Cozier, 2014; Coleman et al. 2019; Vilija et al., 2014). Outcomes included BMI measured through height and weight, (Moore & Cunningham, 2012; Johnson et al. 2012; Cozier, 2014; Coleman et al. 2019) or excess body fat (Hunte, 2011; Vines et al., 2007).

Methods used to measure discrimination have also varied. The most commonly used measure is The Perceived Racial Discrimination Questionnaire (the frequency of discrimination experiences in multiple environments within a certain amount of time or their lifetime) (Johnson et al. 2012; Cozier, 2014; Pascoe & Richman, 2011; Corral & Landrine, 2012) along with the Everyday Discrimination scale (Coleman et al. 2019; Sutin et al. 2016; Pascoe & Richman, 2011), Perceived Racism Scale (Vines et al., 2007) and The Interpersonal Discrimination Scale (Hunte, 2011). Other studies used the Cumulative Perceived Discrimination Scale (Brodish et al. 2011) or asked participants to recall past discrimination experiences (Pascoe & Richman, 2011).

Not surprisingly, there are also differences in the results obtained across these many studies. Controlling for sociodemographic variables some longitudinal studies have found a positive association of lifetime discrimination (Hunte, 2011) to obesity as well as

cross-sectional studies of everyday discrimination, (Cozier et al., 2014; Coleman et al. 2019), institutional discrimination, (Moore & Cunningham, 2012; Sutin et al., 2016) and residential segregation (Cozier et al., 2014) to obesity (Coleman et al. 2019; Cozier et al., 2014; Johnson et al., 2012; Moore & Cunningham, 2012; Sutin et al., 2016). Other studies have failed to find an association for lifetime discrimination in their longitudinal study (Cozier et al., 2014; Johnson et al., 2012) and everyday discrimination (Johnson et al., 2012; Vines et al. 2007) in their cross-sectional study to obesity.

Relationship Between Discrimination and Unhealthy Consumption

Many studies have focused on the relationship of discrimination to obesity (Cozier et al., 2014; Sutin, 2009), however, some have examined the relations of discrimination to health habits such as eating behavior (Moore & Cunningham, 2012; Sutin et al., 2016; Brodish et al., 2011; Pascoe & Richman, 2011; Corral & Landrine, 2012). Studies indicate that discrimination has been associated with dietary behavior such as unhealthy consumption and impulsive eating (Coleman, 2019). Although high rates of discrimination have been linked to unhealthy food consumption (Coleman, 2019), many questions remain regarding more specific understandings of the types of consumption that are affected by or associated with discrimination.

The predictors included institutional discrimination (Moore & Cunningham, 2012; Sutin et al., 2016; Brodish et al., 2011) and everyday discrimination (Pascoe & Richman, 2011; Corral & Landrine, 2012). Many studies have used cross-sectional analyses (Moore & Cunningham, 2012; Pascoe & Richman, 2011; Sutin et al., 2016; Corral & Landrine, 2012) rather than longitudinal analyses (Brodish et al., 2011) with all samples being convenience samples (Moore & Cunningham, 2012; Brodish et al., 2011;

Pascoe & Richman, 2011; Sutin et al., 2016; Corral & Landrine, 2012). Participants included people of all genders (Moore & Cunningham, 2012) and participants of a certain race, in most cases African Americans (Brodish et al., 2011; Pascoe & Richman, 2011; Sutin et al., 2016; Corral & Landrine, 2012).

The outcome variables included dietary behaviors (Moore & Cunningham, 2012), health behaviors (Brodish et al., 2011), eating habits (Pascoe & Richman, 2011; Sutin et al., 2016), and fruits and vegetables consumption (Corral & Landrine, 2012). The methods used to measure consumption have varied. Many researchers assessed the frequency of consumption for fruits and vegetables (Moore & Cunningham, 2012; Brodish et al. 2011; Pascoe & Richman, 2011; Sutin, 2016; Corral & Landrine, 2012), daily good meals (Brodish et al. 2011), foods high in sugar and salt (Moore & Cunningham, 2012; Pascoe & Richman, 2011; Sutin, 2016) , or frequency of consumption at a fast food restaurant (Brodish et al. 2011). Other researchers used hypothetical food-decision computer tasks (choosing a healthy or unhealthy food option) or non-hypothetical food item choice (Pascoe & Richman, 2011). Most studies assessed consumption on a weekly basis, (Moore & Cunningham, 2012; Brodish et al. 2011; Pascoe & Richman, 2011; Corral & Landrine, 2012) however, some examined consumption on a daily basis (Sutin, 2016).

The results of studies examining the association of discrimination to dietary behaviors are mixed. In survey studies, people with high institutional discrimination had poorer dietary behaviors (i.e. lower grain and vegetable intake but high fruit, meat, and dairy intake, with a high consumption of specific fatty foods) (Moore & Cunningham, 2012) where others found institutional discrimination (Sutin et al., 2016; Brodish et al.,

2011) increases binge and emotional eating along with everyday discrimination leading to an increase in unhealthy food choices (Pascoe & Richman, 2011). A longitudinal study found that more cumulative perceived racial discrimination during adolescence was associated with an increase frequency of unhealthy consumption during adulthood (Brodish, 2011). Not all studies, however, have found associations of racial discrimination to eating behavior, specifically fruit and vegetable consumption (Corral & Landrine, 2012).

In laboratory studies, acute simulations of discrimination in which individuals were shown stigmatizing messages, participants reported wanting to consume more calories than individuals who are shown neutral messages (Sutin, 2016). In another laboratory study, participants who reflected on their past experiences of discrimination or received a negative evaluation had an increased likelihood of choosing an unhealthy food item over a healthy one (Pascoe & Richman, 2011). Due to the limited research on discrimination and consumption along with the existing evidence being mixed it is important to understand if discrimination contributes to health disparities through health behaviors, further analyses need to be conducted.

Various mixed methods have been used to measure unhealthy consumption leading to more room for error when interpreting the results, especially when the variables were not clearly defined. In multiple studies unhealthy consumption is defined as negative health behaviors or eating habits (Pascoe & Richman, 2011) conducting surveys with items such as, “How often do you eat at least one good meal a day?” (Brodish et al., 2011). These questions can be hard to interpret because there is no set definition for a “good meal.” Another word commonly used in survey questions is

"times" with examples including, "How many times do you typically eat vegetables/fruit? How many times do you typically eat a meal or snack from a fast food restaurant?" (Brodish et al., 2011) The quantity of "times" and the portion of those items within each time may be different for each participant and is not clearly defined. For example, in Johnson et al's (2012) article they assess racial discrimination and its association to eating behaviors and obesity. The researchers hypothesize stress was a mediator explaining increases in emotional eating, but stress itself was not assessed in this study

Many gaps remain in the literature pertaining to the effects of discrimination to unhealthy consumption. Research does not result in a clear conclusion if unhealthy consumption is a function of recent exposure to discrimination or chronic, lifetime exposure. Researchers need to question what types of discrimination (social exclusion, work discrimination, stigmatization, and threat or physical harassment) are associated with factors of food (type of food, the specific foods eaten, food availability). If research could pinpoint the exact factors of discrimination and food consumption that influence and increase the risk for chronic diseases more preventative measures could be implemented to alleviate the problem.

It is also unclear if the effects of discrimination are independent of other life stressors such as neighborhood poverty and life stress. High poverty neighborhoods have fewer supermarkets (with low healthy options) regardless of race/ethnicity but more grocery stores with ready to consume products and processed foods (Bower, Thorpe, Rohde, & Gaskin, 2014; Leite et al., 2018). An average of 23 million Americans live in food deserts (i.e., areas that lack resources to healthy food sources) with 49.1 million people experiencing food insecurity (availability of nutritional food) throughout the year

(health.gov, 2019).With limited access and ability to obtain healthy foods individuals living in poverty are more likely to consume unhealthy products. Life stress and daily hassles increase the negative affect on an individual which can lead to maladaptive coping behaviors. Stress is defined as the negative feelings such as annoyance, irritation, or worry that is a product of events, thoughts, or situations that occur throughout the day (i.e. trauma, discrimination, institutional pressure, etc.) (Vilija et al., 2014; Ong, 2009). Associations have been found between post-traumatic stress symptoms (Vilija et al., 2014) and daily hassles (Ong, 2009) to an increase in consumption of snacks high in fat/sugar and reduction of main healthy meals. This study recruited participants from a medical center serving a highly diverse group of low income individuals which might show how neighborhood disadvantage and life stress may be linked to discrimination.

The aim of this study is to test the hypothesis that both recent and lifetime racial discrimination along with discrimination subscales (social exclusion, work discrimination, stigmatization, and threat or physical harassment) is linked to unhealthy food consumption and health habits. Multiple covariates (poverty level, stressful/major life events, etc.) are added to the study as food consumption is complex and influenced by many factors.

METHODS

Participants

The current study utilized archival data from an unpublished study on discrimination and health, and analyses examined the association of discrimination to food consumption. Participants were recruited from waiting rooms and offices within a local medical clinic in Jamaica, NY catering to an ethnically diverse population. Both patients and staff were included in the sample population. Participants completed a survey about discrimination, stress, and health. All participants were compensated for their time with $40 and a gift bag. The study was approved by the Institutional Review Board.

The total sample recruited included 154 English-speaking participants. However, there participants had missing data on key variables including: one participant for lifetime discrimination, race, and tract level income, two for stress level, three for unhealthy and healthy consumption, five for age, six for education, and twenty-four participants for income. Therefore, the analytic sample included 142 participants (M = 39) with 48 males (33.5%) and 95 females (67.5%). The sample was racially and ethnically diverse (see Table 1). Of all participants 40.43% were of Hispanic descent. The sample population was made up of 47.68% (n = 65) self-identified African American participants, 15.89% (n = 24) self-identified Caucasian, 3.31% (n = 5) self-identified American Indian or Alaskan Native participants, 4.64% (n = 7) self-identified Asian or Pacific Islander participants, with the remaining 28.48% (n = 42) identifying as another unlisted ethnic group.

Measures

Demographic Characteristics. Demographic variables were reported from each participant including age (in years), race, ethnicity, gender, neighborhood poverty level, and education level (less than high school diploma, high school diploma or GED, or college degree and higher). Neighborhood poverty was assessed using census data which provided information about the percent of residents in a block group living at or below Federal poverty levels. To obtain neighborhood values, all data were geocoded using the participant's address. The neighborhood (U.S. Census Bureau, 2017). Participants also reported their ethnicity in an open-ended question.

Perceived Racial Discrimination. Discrimination was assessed with the Brief Perceived Ethnic Discrimination Questionnaire - Community Version (BPEDQ-CV) using the Lifetime and Past Week Discrimination Scales (α = .95) (Brondolo et al., 2005). The 17-item Lifetime Discrimination Scale inquired about the experiences of different types of discriminatory events. The community version looks specifically at the experience of community-dwelling adults. Examples of the items included: "Because of your Ethnicity/ Race, have others actually hurt you or tried to hurt you (e.g. kicked or hit you)?" and "Because of your Ethnicity/ Race, have you been treated unfairly by co-workers or classmates?"

A 5-point Likert scale was used with 1 being never happened to 5 happened very often. In the Brief PEDQ there are 4 items for every subscale except stigmatization which includes 5 items. Subscales included: social exclusion (4 items, α = .88), stigmatization (5 items, α = .86), work discrimination (four items, α = .75) and threat or physical harassment (four items, α = .81). Social exclusion occurs when individuals are excluded

from social interactions, rejected, or ignored because of their ethnicity or race. Stigmatization can include both verbal and non-verbal behavior that degrades the individual, including communicating beliefs about the individual's laziness, honesty or cleanliness due to their racial or ethnic group. Work discrimination includes lowered expectation or refusal to hire or promote because of the race or ethnicity of said individual. Threat and harassment can include potential or actual damage to an individual or property because of their ethnicity or race.

The Past Week Discrimination Scale is a 10-item questionnaire for recent discrimination (α = .99). The scale had a 4-point Likert scale with 0 being never in the past week to 3 being 3 or more times in the past week. Examples of the questions included were, "This past week how often did someone treat you unfairly because of your ethnicity/ race?" "This past week how often did someone look at you in a mean or nasty way?"

Life Stress. Stress was assessed through negative life events with a 10-item measure inquiring about exposure to financial, health, assault and other negative events used in our prior research (personal communication from Irene Blair). The 10 negative life events included: death of a close family member or loved one, separation, divorce, or break up from your romantic partner or spouse, detention in jail or a similar institution, major legal issues, major changes in your family situation (i.e. getting married, pregnancy, both or adoption, leaving home), serious health issues or injuries to self, a close family member or loved one, and serious issues with your own spouse's employment or school.

Food Consumption. The Health Habits questionnaire was used for food consumption (Community Health Worker, 2012). Participants completed items on food consumption both healthy and unhealthy, including: the number of days in a week that participants ate fruits and vegetables, whole grains, red meat, foods high in salt and fat, fried foods, and sugary foods. Body mass index (BMI) was calculated as weight in kilograms divided by height in meters squared.

Obesity. Obesity in adults was defined as a BMI of greater than or equal to 30. Self-reported height and weight were used to calculate obesity.

Procedure

All participants were given informed consent along with the possible risks and benefits of the study. Participants were then informed that the study was completely confidential, and all information provided was kept private. The study contained items that looked specifically at perceived discrimination with specific subscales and its association to consumption (healthy or unhealthy). Our predictor construct was perceived discrimination which was measured using the BPEDQ-CV with lifetime and past week subscale scores. The outcome construct (dependent variable) was healthy and unhealthy consumption which was measured by the frequency in the types of food each participant reported they ate. The socio-demographic covariates included age, gender, race, neighborhood poverty level, education level, and life stress.

Analytic Plan

All variables used were tested for normality and log transformed if the variable was skewed. Analysis was conducted to further evaluate potential covariates. Correlational analyses were used to evaluate the relationships of covariates which yield

continuous scores (i.e., age, neighborhood poverty level, and life stress) to discrimination and consumptions, and a series of analyses of variances (ANOVAs) were conducted to examine the relations of categorical variables, including gender, race, level, and education level to discrimination and consumption.

Regression analyses were performed with lifetime discrimination as the predictor and either healthy or unhealthy consumption serving as the outcome. Four different models permitted control of a series of covariates. In the first regression model total lifetime discrimination was used to predict healthy or unhealthy consumption. In the second model demographic covariates such as age, gender, and race were controlled to the regression. In the third model, socio-demographic variables such as neighborhood poverty level, and education level were included, along with life stress was added to the equation. All analyses were repeated with past week discrimination serving as the predictor.

Further regression analyses were conducted entered discrimination subscales simultaneously to evaluate the unique contribution of any of the types of discrimination.

Analyses were repeated removing significant outliers (see Tables 19-22).

RESULTS

Preliminary Analyses

Data from the survey was analyzed using SAS 9.4. Frequency distributions were examined to check for potential errors in data entry, unusual means, extreme skewness or kurtosis, and large standard deviations. Next, the data was assessed for missing data and values. Those with missing data (n = 14) were compared to those without any missing data on key variables including perceived discrimination, food consumption (healthy or unhealthy), and all covariates including age, gender, ethnicity/race, neighborhood poverty level, education level, and life stress. Analyses revealed there were no differences between those with missing and non-missing data on age, gender, ethnicity/race, neighborhood poverty level, education level, life stress, healthy and unhealthy food consumption. Those with missing data did tend to have lower scores on measures of lifetime discrimination ($p<.06$) and life stress ($p<0.07$), but these differences did not reach significance. Variables such as income, tract level income, and marital status were excluded due to the high rates of missing data from all participants.

Log transformation of key variables improved skewedness but did not affect the outcomes of analyses. Therefore, results presented here reflect analyses with untransformed variables.

Sample Characteristics

The sample was ethnically diverse with the majority identifying as Puerto Rican (n=26, 20.96%), Jamaican (n=14, 11.29%), Dominican (n=13, 10.48%), and Indian (n=7, 5.65%) (see Table 2). Participants ranged in age from 18 to 84 years (M = 39.27, SD = 12.88) and 97 (68%) participants were women. More than half (n = 88, 61.54%) of the

participants were born in the United States. Majority were working full time (n = 81, 57.04%) but 27.34% (n=38) had incomes lower than $20,000. More than half the participants were single (n = 74, 51.75%) with a range of education levels from GED or lower to graduate school. Most participants had at least a high school education (63%) and stressful life events for all participants were generally low but fluctuated from a range of zero to nine (*M* = 2.69, *SD* 2.24) (see Table 4).

Descriptive Means for Consumption

Participants reported consuming fruits and vegetables on average three to four times a week. All other types of unhealthy (red meat, fried foods, sugary foods, salty drinks, salty foods, foods high in fat, and starch) and healthy food (fish/poultry, grain, nuts, and foods low in fat) were consumed on average one to two times per week. In the sample, height and weight were calculated to determine BMI levels. The body mass index of the sample ranged from 16.8 to 49.9, 22.93% (n = 36) were overweight (i.e., BMI > 30) and 17.20% (n=27) severely obese participants (BMI > 35).

Demographic Variables and Consumption

Relations of demographic variables to consumption were evaluated using correlation and ANOVAs to determine if these demographic variables should serve as covariates in subsequent analyses (see Tables 6 and 7). Age was negatively associated with unhealthy consumption (r (142) = -0.27, p< .01) but was not associated with healthy consumption. Neither gender (p = .08) nor race (p = .09) were related to healthy or unhealthy consumption.

Socio-Demographic Variables and Consumption

Prior studies have shown high poverty neighborhoods have been shown to have fewer supermarkets (more healthier options) regardless of race/ethnicity but more grocery stores with ready to consume products and processed foods (Bower, Thorpe, Rohde, & Gaskin, 2014; Leite et al., 2018). Therefore, we used correlation and ANOVA to determine if these demographic variables should serve as covariates in subsequent analyses.

Correlations indicated percent of individuals living at poverty level in the census tract was positively associated with unhealthy consumption (r (142) = 0.19, p< .05), but not healthy consumption (see Table 6). There was a significant difference in unhealthy consumption as a function of education level F(2,139) = 3.28, p < .05 but no difference in healthy consumption (p=.09). Participants with a high school diploma (M = 2.42, SD = 0.79) reported the highest rates of unhealthy consumption, followed by participants with less than a high school diploma (M = 2.30, SD = 1.01) and college graduates (M = 2.02, SD = 0.61).

Socio-Demographic Variables and Discrimination

Correlations were employed to investigate the relations of demographic variables to types of discrimination. Age was negatively associated to lifetime discrimination (r (142) = -0.22, p= .01), social exclusion (r (141) = -0.22, p< .01), and work discrimination (r (142) = -0.22, p<.01) but not threat and physical harassment, stigmatization or past week discrimination (p > .10) (see Table 6).

An ANOVA examined social exclusion as a function of gender revealed a marginal effect, F(1,139) = 3.14, p = .08 but not to past week or lifetime discrimination,

work discrimination, threat or physical harassment, or stigmatization ($p > .10$). Women ($M = 2.23$, $SD = .93$) were slightly more likely to report race-based social exclusion than men ($M = 1.94$, $SD = .78$). Race ($p > .10$), poverty level and education level ($p > .10$) had no significant association to any of the discrimination subscale variables (see Table 8 and 9).

Regression Analyses: Discrimination Predicting to Consumption

Three sets of hierarchical multiple regression analyses were performed to examine the relations of lifetime and past week discrimination to healthy and unhealthy consumption. In Model 1, the effects of discrimination on consumption were tested in an unadjusted model that included no demographic or socio-demographic variables. In Model 2, the effects of discrimination on consumption were tested in an adjusted model that included all significant demographic, socio-demographic variables. In Model 3, the effects of discrimination on consumption were tested in an adjusted model for all possible covariates.

Lifetime discrimination predicted unhealthy food consumption ($B = .26$, $SE = .11$, $b = .20$, $t = 2.42$, $p < .02$) only in unadjusted analyses (see Tables 12 and 13).

The three models results revealed the effects of past week discrimination on unhealthy food consumption were significant and positive, even in fully adjusted analyses, controlling for age, gender, ethnicity, education level, neighborhood poverty and life stress ($B = .24$, $SE = .10$, $b = .22$, $t = 2.46$, $p < .02$) in a multiethnic sample (see Table 11). Past week discrimination was associated with consumption of healthy foods in both unadjusted and fully adjusted analyses, including adjustment for consumption of unhealthy food ($B = .38$, $SE = .12$, $b = .28$. $t = 3.08$, $p < .002$).

Regression Analyses: Discrimination Subscales Predicting to Consumption

In a multiple regression analysis in which all four subscales were entered simultaneously, unadjusted correlations indicated that both threat or physical harassment and stigmatization were associated with healthy and unhealthy consumption, respectively.

Regression analyses indicated only threat or physical harassment revealed a positive association to healthy consumption. Controlling for age, gender, race, education level, neighborhood poverty level and life stress only threat explained the unique variance to healthy food consumption ($B = .30$, $SE = .14$, $t = 2.18$, $b = .21$, $p < .04$) (see Tables 14 and 15). The effects of threat on healthy food consumption remain significant even when controlling for unhealthy consumption. The effects of stigmatization on unhealthy food consumption were no longer significant when all four subscales were in the equation.

BMI

Our results indicated that there was no association between lifetime or recent discrimination with BMI levels indicating no association to obesity.

DISCUSSION/ IMPLICATIONS

Previous literature has examined the relationship between interpersonal racial discrimination to food consumption with mixed results. The purpose of the current research was to determine if both recent and lifetime racial discrimination along with discrimination subscales (social exclusion, work discrimination, stigmatization, and threat or physical harassment) was linked to unhealthy food consumption and health habits. Results revealed lifetime discrimination was associated with unhealthy (like Brodish et al., 2011) but not healthy consumption. The effects were no longer significant when adjusting for demographics, socio-demographics and life stress. In contrast, recent (past week discrimination) was associated with both unhealthy (like Moore & Cunningham, 2012, Pascoe & Richman, 2011, and Sutin et al., 2016) and healthy consumption and even when controlling for neighborhood poverty level, education level, and life stress. The effects of past week discrimination on the consumption of unhealthy food remained significant controlling for the consumption of healthy foods, and the effects of past week discrimination on the consumption of healthy food remained significant controlling for the effects of unhealthy foods. This data suggest higher levels of recent discrimination increase consumption overall.

This is consistent with prior studies indicating a relation among discrimination and emotional eating (Coleman, 2019; Johnson, 2013; Mwendwa et al., 2011). Emotional eating is defined as a coping strategy to suppress negative affect such as stress, anger, fear, or sadness that resulted from major life events or daily hassles (Johnson, 2013; O'Connor et al., 2008). Studies have found individuals who had higher everyday experiences of discrimination had increased levels of emotional eating in fathers and sons

(Coleman, 2019) along with African American women who were more likely to eat when feeling depressed to decrease their stress levels (Johnson, 2013).

Another theory for the explanation of discrimination to unhealthy consumption is when an individual experiences race-related discrimination negative affect occurs, where an individual tries to self-regulate, therefore, inhibitory control lowers in which maladaptive coping strategies such as unhealthy consumption can develop (Brondolo et al., 2017; Pascoe & Richman, 2011).

Threat or physical harassment revealed a positive association to healthy consumption. which is contrary to past studies that have shown discrimination leads to unhealthy consumption (Pascoe & Richman, 2011). When a person is threatened their defensive responses (fight-flight-or-freeze) are heightened also known as our behavioral inhibition system (Xu & McGregor, 2018). People become motivated to reduce the distress through engaging in coping. Facing race-related threat may motivate individuals to strengthen their ability to face the threats, potentially through healthy eating.

Our results indicate that there was no association between perceived racial discrimination and obesity. This may be due to our sample given that it was relatively small. In past studies individuals with higher BMI are more likely to experience weight discrimination, which in turn is associated with eating more convenience food, overeating to the point of feeling sick and irregular meals (Sutin et al. 2016). Among adults who also seek treatment for obesity, those who reported more stigmatizing experiences based on their weight reported more binge eating related behavior (Sutin et al. 2016).

Memories of discrimination may be stored as future harm or avoidance schemas where an individual becomes more aware of negative social cues (Mays, Cochran, &

Barnes, 2007). Studies show that discrimination over time can lead to high daily stress (Ong et al. 2009), an increase in anxiety and depression (Gibbons, 2014), low self-esteem scores, and overall low mental health with high risk behaviors such as an increase in alcohol and drug use (Yang et al. 2018; Gibbons, 2014; Stuckler, 2012). Some studies, however, have not found any association for positive emotional responses such as praying, speaking up, or avoiding it towards racism to predict obesity or one's daily life as stressful (Mwendwa et al., 2011). The increased pattern of exposure to daily or chronic discrimination creates a pattern of traumatic events that can impact reactions to future discrimination, increasing the likelihood these instances will be perceived negatively and potentially intensifying an individual's response to stressful life events (Ong, Fuller-Rowell, & Burrow, 2009).

Further, additional work is needed to clarify if other negative life stressors, socioeconomic deprivation and/or social position also contribute to the relation of discrimination to unhealthy eating. Examples of these include food oppression and access. Food oppression is defined as a form of structural subordination that builds on and deepens pre-existing disparities along race and class lines (Freeman, 2007). This is in part due to residential segregation which is in concentrated neighborhoods of predominantly poor, racial/ethnic minorities who experience racism and immigrants (Freeman, 2007; Mays, Cochran, & Barnes, 2007; Kwate et al., 2010) The availability and relative cost of healthier foods such as fresh fruits and vegetables varies considerably across communities (Freeman, 2007; Mays, Cochran, & Barnes, 2007). Many low-income communities, predominantly African American neighborhoods, have fewer healthy or affordable options, lack of green space, substandard housing and schools, and

the largest exposure to unemployment (Bower et al., 2014; Cozier, 2014; Ghosh-Dastidar et al., 2014; Mays, Cochran, & Barnes, 2007; Kwate et al., 2010) so access is limited and many individuals are more likely to shop a farther distance from their home to obtain healthier options (Zenk, 2014).

One theory is that the distance to a supermarket may be an underlying cause of obesity and other health disparities (Ghosh-Dastidar et al., 2014). The cost of transportation or the physical strain an individual experience traveling to the supermarket may cause people to choose a store with less healthy options for the convenience aspect (Ghosh-Dastidar et al., 2014). Those who have experienced discrimination eats more convenience/fast foods which is defined as the readily available use, or consumption of food with little consideration given to quality (Freeman, 2007) that is a large factor in obesity, diet and chronic diseases among adults (Kwate et al., 2010) and is a public health concern as fast food restaurants tend to cluster around schools (25% within 400m) and low-income communities (Kwate et al., 2010; Leite et al., 2018).

When looking further into unhealthy consumption there are specific disparities in certain foods being consumed known as diet-related disparities. Diet-related disparities are defined as the differences in dietary intake and eating behavior in different segments of the population that result in poor dietary quality and worse health outcomes for certain groups (Satia, 2009). Acculturation for Asian and Hispanic adolescents to the United States was significantly associated with a lower frequency of physical activity and high frequency of fast-food consumption which is a risk factor for obesity-related behaviors (Unger et al., 2004). Research on alternative food practice has indicated that there are race aspects to organic food production, that “whiteness” is a way of promoting

sustainable farming and healthy eating (veganism) (Slocum, 2007). Many people would argue that African Americans cultural preference for food is based off "soul food" (buttermilk biscuits, fatback, dumplings, okra, neck bones) which are high in fat (Freeman, 2007).

Society tends to blame individual health choices for weight and consumption issues but many times it has to do with problems in policies and practices (Freeman, 2007). Transnational corporations' profit from increased consumption of tobacco, alcohol, and ultra-processed food and drink (unhealthy commodities) (Moodie, 2013; Moreira, 2015; Stuckler, 2012) because of their low production cost, high shelf-life, and retail value (Stuckler, 2012).

Other individual (income, physical conditions, mental illnesses, etc.) and neighborhood stressors (food access, physical environment, violence and crime, etc.) may also contribute to unhealthy food choices, and research is needed to determine if the effects of discrimination hold, even after controlling for these variables (Wang & Chen, 2011). Our study was limited to a relatively small sample size in the United States. Further research should examine the relationship in other areas of the world. Past research in Brazil found food stores that are located closer to public schools had a high concentration of ultra-processed food products where ready to consume products have risen from 20.3% to 32.1% in the last three decades (Leite et al., 2018). In the United Kingdom and Canada 63.4 % and 61.7% of dietary consumption, respectively, came from ready to consume products (Leite et al., 2018). In the United Kingdom, unprocessed/minimally processed foods with culinary ingredients can reduce the mortality rate of cardiovascular disease down to 13% with 14,235 fewer coronary deaths

and 7,820 fewer stroke deaths (Moreira, 2015). Some people can maintain a healthy lifestyle when dealing with discrimination. However, many still use maladaptive coping strategies such as unhealthy consumption (Brodish, 2011). Extenuating factors in an individual's life further influence how one reacts and behaves to discrimination.

LIMITATIONS

Several limitations occurred during this study. Examples included small sample size, low equality in gender, and self-report data being analyzed. The sample consisted of 143 participants (M = 39) which is a moderately small sample size. However, if there were more participants it would help generalize it to the population. The sample also came from a hospital consisting of participants who were patients, staff or visitors. Females made up more than half of the sample which could skew the data based on gender. All data included from participants was self-report data. Self-report data can cause issues as individuals may not be accurate in assessing themselves. People tend to under or overestimate their answers when completing the questionnaire. For example, when participants are asked, "How often do you consume sugary drinks?" most participants will underestimate how much they drink/eat. In fear of social exclusion or judgement for consuming unhealthy food/drink most participants will report a lower number. People also tend to increase their nervousness becoming more aware that an experimenter (usually a higher authority figure) will be assessing their answers. Due to this they do not want to disappoint or answer incorrectly because they may be judged by the experimenters, so they try to answer in a way they think the study is supposed to be done. Since the survey is completely anonymous, we also have no way of knowing if their answers accurately represent their behavior.

CONCLUSION

The data suggest that perceived racial discrimination, independent of other stressors, is associated with unhealthy food consumption, but the effects are not consistent across all types of discrimination. Race-related physical threat is associated with consumption of healthy foods; whereas there is some evidence that stigmatization is associated with consumption of unhealthy foods. More broadly, race-related stress may affect self-regulation and coping strategies (Brondolo et al., 2017; Mwendwa et al., 2011; Pascoe & Richman, 2011; and Stock et al., 2017) and therefore may be mediating the relationship between discrimination and food choices.

Limitations of the study include the small sample size and the use of self-report measures. Overall, ethnic/racial discrimination when combined with unhealthy consumption can lead to health issues such as obesity and obesity related diseases like diabetes, hypertension and cardiovascular disease (Moore & Cunningham, 2012; Johnson et al. 2012; Moodie, 2013). Future research should examine the relation of different types of discrimination to consumption in different racial and ethnic groups, and examine the contexts (i.e., setting, types of individuals) in which discrimination occurs to better understand how discrimination may affect consumption.

APPENDIX

Table 1
Participant Demographic Characteristics

Demographics	Total N (%)	Black and Latinx N (%)
Gender		
Male	45(31.69%)	24(36.92%)
Female	97(68.31%)	41(63.08%)
Latinx		
Yes	57(40.43%)	12(18.75%)
No	84(59.57%)	52(81.25%)
Race/Ethnicity		
American Indian/Alaskan Native	5(3.50%)	
White	24(16.78%)	
Asian/Pacific Islander	7(4.90%)	
Black/African American	65(45.45%)	
Other	42(29.37%)	
Black and Latinx Only		
Other	3(30%)	4(5.80%)
Black/African American	6(60%)	65(94.20%)
Born in the United States		
Yes	88(61.54%)	47(72.31%)
No	55(38.46%)	18(27.69%)
Marital Status		
Single	74(51.75%)	38(58.46%)

Married	40(27.97%)	14(21.54%)
Widowed	3(2.10%)	1(1.54%)
Divorced	6(4.20%)	3(4.62%)
Separated	6(4.20%)	4(6.15%)
Not married/living with someone	10(6.99%)	5(7.69%)
Work Status		
Full-time	81(57.04%)	31(48.44%)
Part-time	11(7.75%)	8(12.50%)
Not working	50(35.21%)	25(39.06%)
Income		
$0-$10,000	16(11.51%)	5(8.20%)
$10,000-$20,000	22(15.83%)	17(27.87%)
$20,000-$30,000	7(5.04%)	4(6.56%)
$30,000-$40,000	15(10.79%)	4(6.56%)
$40,000-$50,000	15(10.79%)	6(9.84%)
$50,000-$60,000	4(2.88%)	1(1.64%)
$60,000-$70,000	9(6.47%)	4(6.56%)
$70,000-$80,000	8(5.76%)	4(6.56%)
$80,000-$90,000	3(2.16%)	1(1.64%)
$90,000-$100,000	9(6.47%)	2(3.28%)
$100,000+	11(7.91%)	2(3.28%)
Unknown	20(14.39%)	11(18.03%)
Education Level		
Grades K-8	1(0.72%)	
Grades 9-11	17(12.32%)	13(20.31%)

Completed High-School/GED	31(22.46%)	13(20.31%)
Some College	38(27.54%)	12(18.75%)
Technical School	21(15.22%)	13(20.31%)
Completed College	18(13.04%)	8(12.50%)
Some Graduate Training	1(0.72%)	1(1.56%)
Completed Graduate Training	11(7.97%)	4(6.25%)

Table 2

Ethnic Group Frequency

Major Ethnic Groups	Frequency	Percent
African American	4	3.23%
American	5	4.03%
Black	4	3.23%
Columbian	3	2.42%
Dominican	13	10.48%
Guyanese	6	4.84%
Haitian	6	4.84%
Indian	7	5.65%
Jamaican	14	11.29%
Puerto Rican	26	20.96%
Trinidadian	4	3.23%

Table 3

Reliability of Construct Variables

	Alphas	All Race/Ethnicities	Only Blacks
Lifetime Discrimination	.90	M=1.68 SD=.60	M=1.79 SD=.54
Social Exclusion	.78	M=2.10 SD=.87	M=2.22 SD=.84
Threat or Physical Harassment	.82	M=1.42 SD=.65	M=1.49 SD=.73
Stigmatization	.73	M=1.46 SD=.58	M=1.54 SD=.56
Work or School Discrimination	.76	M=1.80 SD=.82	M=1.98 SD=.76
Past Week Discrimination	.92	M=0.56 SD=.70	M=0.67 SD=.77
Unhealthy Consumption	.84	M=2.28 SD=.78	M=2.29 SD=.83
Healthy Consumption	.81	M=2.59 SD=.94	M=2.61 SD=1.04

Note. Correlational alphas for all construct variables used, each alpha is .73 or higher.

Table 4
Stressful Life Events Frequency

Stress Level	Total Frequency (n = 143)	Total Frequency Percentage	Black and Latinx Frequency (n = 69)	Black and Latinx Frequency Percentage
0	24	16.90%	8	12.31%
1	29	20.42%	16	24.62%
2	18	12.68%	8	12.31%
3	25	17.61%	10	15.38%
4	21	14.79%	8	12.31%
5	9	6.34%	5	7.69%
6	5	3.52%	2	3.08%
7	4	2.82%	2	3.08%
8	3	2.11%	3	4.62%
9	4	2.82%	3	4.62%

Table 5
Means and Standard Deviations for All Variables

Variable	Mean	Standard Deviation
Lifetime Discrimination	M = 1.71	SD = 0.61
Social Exclusion	M = 2.14	SD = 0.89
Work Discrimination	M = 1.83	SD = 0.85
Threat or Physical Harassment	M = 1.45	SD = 0.67
Stigmatization	M = 1.49	SD = 0.60
Unhealthy Consumption	M = 2.30	SD = 0.79
Healthy Consumption	M = 2.57	SD = 0.95
Difference between Healthy and Unhealthy Consumption	M = 0.27	SD = 1.18
Age	M = 39.03	SD = 12.62
Income	M = 5.03	SD = 3.19
Poverty Level	M = 0.20	SD = 0.12
Stress Level	M = 2.69	SD = 2.24

Table 6
Correlational Analyses of All Numeric Variables

Variable	Age	Poverty Level	Stress Level
Lifetime Discrimination	-0.22**	0.11	0.30**
Social Exclusion	-0.22**	0.06	0.24**
Work Discrimination	-0.22**	0.12	0.32**
Threat or Physical Harassment	-0.09	0.09	0.21**
Stigmatization	-0.16	0.11	0.20*
Past Week Discrimination	-0.06	0.08	0.41**
Unhealthy Consumption	-0.27**	0.19*	0.16
Healthy Consumption	0.09	0.04	-0.11

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

Table 7
ANOVAs of Categorical Variables

Variable	Gender	Race	Education	Marital Status
Lifetime Discrimination	0.00	2.35*	0.10	0.02
Social Exclusion	3.14*	2.03	0.11	0.67
Work Discrimination	0.17	2.52*	0.86	0.00
Threat of Punishment	0.02	0.91	0.87	0.55
Stigmatization	2.47	1.89	0.89	0.00
Past Week Discrimination	0.39	1.78	2.56	0.73
Unhealthy Consumption	0.19	1.78	3.28*	0.04
Healthy Consumption	1.64	1.44	0.57	4.04*

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

Table 8

Correlation Analyses of Consumption

Variable	Poverty Level	Education Level	Life Stress	Lifetime Discrimination	Past Week Discrimination
Unhealthy Consumption	0.22**	-0.15	0.15	0.16	0.26**
Healthy Consumption	0.04	0.07	-0.12	0.10	0.14

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

Table 9

Correlation Analyses of Consumption to all Discrimination Variables

Variable	Lifetime Discrimination	Social Exclusion	Stigmatization	Work Discrimination	Threat or Physical Harassment	Past Week Discrimination
Healthy Consumption	0.13	0.16	0.02	0.05	0.22**	0.20*
Unhealthy Consumption	0.20*	0.19*	0.19*	0.14	0.15	0.27**
Difference between Healthy and Unhealthy Consumption	-0.03	0.003	-0.11	-0.06	0.07	-0.02

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

Table 10

Regression Analysis of Lifetime Discrimination to Predict Healthy Consumption

	Model 1		**Model 2**		**Model 3**		**Model 4**	
	B(SE)	t	B(SE)	t	B(SE)	t	B(SE)	t
Racism								
Lifetime Discrimination BPEDQ-CVB	0.20(.13)	1.60	0.23(.14)	1.72	0.23(0.14)	1.67	0.31(0.14)	2.17
Demographics								
Age			0.008(0.01)	1.14	0.008(0.01)	1.24	0.008(0.01)	1.24
Gender			-0.27(0.17)	-1.55	-0.23(0.18)	-1.33	-0.22(0.17)	-1.24
Black vs. all			-0.11(.19)	-0.58	-0.09(0.19)	-0.46	-0.08(0.19)	-0.44
Latinx vs. all			-0.46(0.23)	-2.00*	-0.45(0.23)	-1.49*	-0.50(0.23)	-2.15**
Socioeconomic Status (Individual & Neighborhood)								
Education					0.17(0.14)	1.14	0.15(0.14)	1.01
Poverty Level					0.24(0.70)	0.34	0.22(0.69)	0.32
Stress Level								
Major Life Events							-0.07(0.04)	-1.94*

Significant effect occurred p<.05* p<.01

Table 11

Regression Analysis of Lifetime Discrimination to Predict Unhealthy Consumption

	Model 1		**Model 2**		**Model 3**		**Model 4**	
	B(SE)	t	B(SE)	t	B(SE)	t	B(SE)	t
Racism								
Lifetime Discrimination BPEDQ-CVB	0.26(0.11)	2.42**	0.20(0.11)	1.78	0.19(0.11)	1.74	0.16(0.11)	1.38
Demographics								
Age			-0.02(0.01)	-2.80**	-0.02(0.01)	-2.82**	-0.02(0.01)	-2.82**
Gender			-0.08(0.14)	-0.21	-0.07(0.14)	-0.50	-0.08(0.14)	-0.55
Black vs. all			-0.15(0.15)	-0.77	-0.15(0.15)	-0.98	-0.15(0.15)	-0.99
Latinx vs. all			-0.24(0.19)	-1.31	-0.21(0.19)	-1.13	-0.19(0.19)	-1.02
Socioeconomic Status (Individual & Neighborhood)								
Education					-0.24(0.12)	-2.05*	-0.23(0.12)	-1.97**
Poverty Level					0.64(0.56)	1.14	0.65(0.56)	1.16
Stress								
Major Life Events							0.03(0.03)	1.00

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

Table 12

Regression Analysis of Lifetime Discrimination Subscales to Predict Healthy Consumption

	Model 1		**Model 2**		**Model 3**		**Model 4**	
	B(SE)	t	B(SE)	t	B(SE)	t	B(SE)	t
Demographics								
Age			0.007(0.001)	1.01	0.003(0.01)	0.41	0.003(0.01)	0.38
Gender			-0.17(0.18)	-0.94	-0.08(0.21)	-0.40	-0.04(0.21)	-0.20
Black vs. all			-0.09(0.19)	-0.47	0.05(0.21)	0.25	0.05(0.20)	0.24
Latinx vs. all			-0.44(0.23)	-1.89*	-0.63(0.23)	-2.74**	-0.70(0.23)	-3.07**
Socioeconomic Status (Individual & Neighborhood)								
Education					0.11(0.16)	0.70	0.11(0.15)	0.71
Household Income					0.08(0.03)	2.53**	0.08(0.03)	2.45*
Stress Level								
Major Life Events							-0.10(0.04)	-2.32*
Racism								
Race-related Social Exclusion	0.23(0.14)	1.70	0.23(0.15)	1.58	0.20(0.16)	1.20	0.24(0.16)	1.51
Race-related Stigmatization	-0.16(0.18)	-0.88	-0.17(0.19)	-0.89	-0.29(0.21)	-1.41	-0.32(0.20)	-1.58

Race-related Work/School Discrimination	-0.16(0.15)	-1.08	-0.12(0.15)	-0.77	-0.16(0.18)	-0.93	-0.12(0.17)	-0.69
Race-related Threat and Physical Harassment	0.30(0.14)	2.15*	0.28(0.14)	1.98*	0.44(0.16)	2.76**	0.45(0.15)	2.92**

p<.05* *p*<.01**

Table 13

Regression Analysis of Lifetime Discrimination Subscales to Predict Unhealthy Consumption

	Model 1		**Model 2**		**Model 3**		**Model 4**	
	B(SE)	t	B(SE)	t	B(SE)	t	B(SE)	t
Demographics								
Age			-0.01(0.01)	-2.86**	-0.02(0.01)	-3.76**	-0.02(0.01)	-3.74**
Gender			-0.03(0.15)	-0.22	-0.08(0.18)	-0.47	-0.01(0.18)	-0.57
Black vs. all			-0.10(0.15)	-0.64	0.02(0.17)	0.12	0.02(0.17)	0.13
Latin vs. all			-0.28(0.19)	-1.49	-0.25(0.19)	-1.31	-0.22(0.19)	-1.15
Socioeconomic Status (Individual & Neighborhood)								
Education					-0.30(0.13)	-2.28*	-0.30(0.13)	-2.28*
Household Income					0.02(0.03)	0.69	0.02(0.03)	0.75
Stress Level								
Major Life Events							0.04(0.03)	1.14
Racism								
Race-Related Social Exclusion	0.08(0.12)	0.71	0.04(0.12)	0.36	0.01(0.13)	0.04	-0.01(0.13)	-0.10
Race-Related Stigmatization	0.20(0.15)	1.31	0.21(0.16)	1.31	0.24(0.17)	1.41	0.25(0.17)	1.48
Race-Related Work/School Discrimination	-0.05(0.13)	-0.39	-0.07(0.13)	-0.54	-0.11(0.15)	-0.73	-0.13(0.15)	-0.86
Race-Related Threat and Physical Harassment	0.09(0.12)	0.78	0.10(0.12)	0.88	0.11(0.13)	0.87	0.11(0.13)	0.82

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

Table 14

Regression Analysis of Past Week Discrimination Subscales to Predict Healthy Consumption

	Model 1		**Model 2**		**Model 3**		**Model 4**	
	B(SE)	t	B(SE)	t	B(SE)	t	B(SE)	t
Racism								
Past-Week Discrimination	0.26(0.11)	2.37*	0.25(0.11)	2.14*	0.27(0.12)	2.35	0.40(0.12)	3.25**
Demographics								
Age			0.006(0.01)	0.93	0.01(0.01)	1.10	0.007(0.01)	1.02
Gender			-0.25(0.17)	-1.45	-0.20(0.18)	-1.15	-0.16(0.17)	-0.94
Black vs. all			-0.11(0.18)	-0.58	-0.08(0.18)	-0.46	-0.08(0.18)	-0.44
Latin vs. all			-0.42(0.23)	-1.82	-0.41(0.23)	-1.77*	-0.46(0.23)	-2.02**
Socioeconomic Status (Individual & Neighborhood)								
Education					0.23(0.15)	1.56	0.23(0.14)	1.60
Poverty Level					0.31(0.70)	.44	0.31(0.68)	0.46
Stress Level								
Major Life Events							-0.10(0.04)	-2.62

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

Table 15

Regression Analysis of Past Week Discrimination Subscales to Predict Unhealthy Consumption

	Model 1		**Model 2**		**Model 3**		**Model 4**	
	B(SE)	t	B(SE)	t	B(SE)	t	B(SE)	t
Racism								
Past-Week Discrimination	0.30 (0.09)	3.36**	0.29 (0.09)	3.16**	0.26 (0.10)	2.79*	0.24 (0.10)	2.36*
Demographics								
Age			-0.02 (0.01)	-3.20**	-0.02 (0.01)	-3.15**	-0.02 (0.01)	-3.12**
Gender			0.008 (0.14)	0.06	-0.02 (0.14)	-0.17	-0.03 (0.14)	-0.22
Black vs. all			-0.13 (0.15)	-0.91	-0.15 (0.15)	-1.04	-0.15 (0.15)	-1.04
Latin vs. all			-0.28 (0.19)	-1.50	-0.24 (0.19)	-1.29	-0.23 (0.19)	-1.24
Socioeconomic Status (Individual & Neighborhood)								
Education					-0.18 (0.12)	-1.54*	-0.18 (0.12)	-1.53*
Poverty Level					0.64 (0.55)	1.17	0.64 (0.55)	1.16
Stress Level								
Major Life Events							0.01 (0.03)	0.48

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

Table 16

Outlier Analysis Healthy Consumption Without Life Stress

Variable	All anal-ysis	Except Sub ID 1503	Sub ID 1542	Sub ID 1553	Sub ID 1555	Sub ID 1584	Sub ID 1613	Sub ID 1643	Sub ID 1656	Sub ID 1657
Lifetime Discrimination	0.14 (0.14)	0.23 (0.15)	0.10 (0.14)		0.17 (0.14)	0.23 (0.15)	0.16 (0.14)		0.19 (0.14)	0.08 (0.14)
Racism Race-related Social Exclusion	0.20 (0.16)	0.18 (0.16)	0.15 (0.16		0.21 (0.16)	0.16 (0.16)			0.24 (0.16)	0.18 (0.16)
Race-related Stigmatization	-0.29 (0.21)	-0.20 (0.21)	-0.36 (0.21)		-0.31 (0.21)	-0.24 (0.21)			-0.33 (0.21)	-0.24 (0.21)
Race-related Work/School Discrimination	-0.16 (0.18)	-0.18 (0.17)	-0.12 (0.18)		-0.13 (0.18)	-0.12 (0.18)			-0.16 (0.17)	-0.18 (0.18)
Race-related Threat and Physical Harassment	0.44 (0.16)**	0.52 (0.16) **	0.43 (0.16) **		0.39 (0.16) *	0.47 (0.16)			0.45 (0.16) **	0.35 (0.17) *
Past Week Discrimination	0.20 (0.13)		0.19 (0.12)	0.25 (0.12) *	0.19 (0.12)	0.26 (0.12) *		0.30 (0.13) *		0.16 (0.12)

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

Table 17

Outlier Analysis Unhealthy Consumption Without Life Stress

Variable	All analysis	All analysis except SubID 1538	SubID 1584	SubID 1618	SubID 1626	SubID 1643	SubID 1644	SubID 1657
Lifetime Discrimination	0.15 (0.12)	0.17 (0.11)	0.03 (0.18)	0.23 (0.12) *	0.10 (0.11)	0.13 (0.11)	0.17 (0.11)	0.09 (0.11)
Racism Race-related Social Exclusion	0.01 (0.13)		0.04 (0.13)	0.01 (0.13)	-0.03 (0.13)	-0.02 (0.13)	-0.004 (0.13)	-0.02 (0.13)
Race-related Stigmatization	0.24 (0.17)		0.17 (0.17)	0.38 (0.17) *	0.29 (0.17)	0.21 (0.17)	0.20 (0.18)	0.36 (0.17) *
Race-related Work/School Discrimination	-0.11 (0.15)		-0.15 (0.14)	-0.08 (0.14)	-0.14 (0.14)	-0.10 (0.14)	-0.04 (0.16)	-0.14 (0.14)
Race-related Threat and Physical Harassment	0.11 (0.13)		0.07 (0.13)	0.08 (0.13)	0.12 (0.13)	0.16 (0.13)	0.11 (0.13)	0.01 (0.13)
Past Week Discrimination	0.24 (0.10) *		0.17 (0.10)	0.27 (0.10) **	0.21 (0.10) *	0.18 (0.10)		0.20 (0.10) *

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

Table 18

Outlier Analysis Healthy Consumption with Life Stress

Variable	All analysis SS	All analysis Except SubID 1503	SubID 1542	SubID 1555	SubID 1584	SubID 1643	SubID 1656	SubID 1657
Lifetime Discrimination	0.23 (0.15)		0.18 (0.15)	0.28 (0.15)	0.31 (0.16) *	0.23 (0.15)	0.26 (0.15)	0.18 (0.15)
Racism Race-related Social Exclusion	0.24 (0.16)	0.23 (0.15)	0.20 (0.16)	0.26 (0.15)	0.21 (0.16)	0.24 (0.16)	0.28 (0.15)	0.24 (0.15)
Race-related Stigmatization	-0.32 (0.20)	-0.23 (0.20)	-0.37 (0.21)	-0.32 (0.20	-0.25 (0.20)	-0.30 (0.20)	-0.34 (0.20)	-0.24 (0.20)
Race-related Work/School Discrimination	-0.12 (0.17)	-0.13 (0.17)	-0.09 (0.17)	-0.08 (0.17)	-0.09 (0.17)	-0.12 (0.17)	-0.13 (0.17)	-0.14 (0.17)
Race-related Threat and Physical Harassment	0.45 (0.15) **	0.55 (0.16) **	0.44 (0.16) **	0.40 (0.15) **	0.49 (0.15) **	0.44 (0.16) **	0.46 (0.15) **	0.35 (0.16) *
Past Week Discrimination	0.35 (0.14) **	0.44 (0.14) **		0.35 (0.13) **	0.40 (0.13) **	0.42 (0.13) **		0.32 (0.13) **

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

Table 19

Outlier Analysis Unhealthy Consumption with Life Stress

Variable	All analysis SS	All analysis Except SubID 1536	Sub ID 1538	Sub ID 1562	Sub ID 1584	Sub ID 1609	Sub ID 1618	Sub ID 1626	Sub ID 1643	Sub ID 1644	Sub ID 1657
Lifetime Discrimination	0.12 (0.12)		0.14 (0.12)	0.13 (0.12)	0.31(0.16) *	0.10(0.12)	0.23 (0.13)		0.12 (0.12)	0.13 (0.12)	0.08 (0.12)
Racism Race-related Social Exclusion	-0.01 (0.13)	-0.03 (0.13)			0.03 (0.13)		0.002(0.13)	-0.04 (0.13)	-0.01 (0.13)	-0.02 (0.13)	-0.01 (0.13)
Race-related Stigmatization	0.25 (0.17)	0.29 (0.17)			0.16 (0.17)		0.37 (0.17) *	0.27 (0.17)	0.20 (0.17)	0.18 (0.18)	0.34 (0.17) *
Race-related Work/School Discrimination	-0.13 (0.15)	-0.18 (0.15)			-0.17 (0.14)		-0.10 (0.14)	-0.15 (0.14)	-0.11 (0.14)	-0.05 (0.15)	-0.15 (0.14)
Race-related Threat and Physical Harassment	0.11 (0.13)	0.12 (0.13)			0.06 (0.13)		0.06 (0.13)	0.11 (0.13)	0.15 (0.13)	0.09 (0.13)	0.0008 (0.13)
Past Week Discrimination	0.22 (0.11) *				0.16 (0.11)		0.25 (0.11) *	0.19 (0.11)	0.17 (0.11)		0.20 (0.11)

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

Table 20

Zero Correlations for Lifetime Discrimination Subscales to Healthy Consumption

Variable	Healthy Consumption (HC)	Controlling (UHC)	Unhealthy Consumption (UHC)	Controlling (HC)
Social Exclusion	0.18*	0.16	0.13	0.11
Threat or Physical Harassment	0.23**	0.22**	0.12	0.09
Work Discrimination	0.07	0.05	0.10	0.09
Stigmatization	0.03	0.01	0.18*	0.18*

Note. Controlled for all demographic, socio-economic, and life stress variables

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

REFERENCES

Adler, N. E., & Stewart, J. (2010). Health disparities across the lifespan: Meaning, methods, and mechanisms. *Annals of the New York Academy of Sciences, 1186*(1), 5-23. doi:10.1111/j.1749-6632.2009. 05337.x

Almiron-Roig, E., Aitken, A., Galloway, C., & Ellahi, B. (2017). Dietary assessment in minority ethnic groups: a systematic review of instruments for portion-size estimation in the United Kingdom. *Nutrition Reviews*, *75*(3), 188–213. https://doi.org/10.1093/nutrit/nuw058

Blodorn, A., Major, B., & Kaiser, C. (2016). Perceived discrimination and poor health: Accounting for self-blame complicates a well-established relationship. *Social Science & Medicine, 153*, 27-34. doi:10.1016/j.socscimed.2016.01.053

Blume, A., Lovato, L., Thyken, B., & Denny, N. (2012). The relationship of microaggressions with alcohol use and anxiety among ethnic minority college students in a historically white institution. *Cultural Diversity & Ethnic Minority Psychology, 18*(1), 45-54. doi:10.1037/a0025457

Bower, K. M., Thorpe, R. J., Rohde, C., & Gaskin, D. J. (2014). The intersection of neighborhood racial segregation, poverty, and urbanicity and its impact on food store availability in the United States. *Preventive Medicine*, *58*, 33–39. https://doi.org/10.1016/j.ypmed.2013.10.010

Boynton, M., O'Hara, R., Covault, J., Scott, D., & Tennen, H. (2014). A mediational model of racial discrimination and alcohol-related problems among African American college students. *Journal of Studies on Alcohol and Drugs, 75*(2), 228-34.

Brodish, A. B., Cogburn, C. D., & Eccles, J. S. (2012). Behaviors: The moderating role of gender, *Race and Social Problems.3*(3), 160–169. https://doi.org/10.1007/s12552-011-9050-6.

Brondolo, E., Brady Ver Halen, N., Pencille, M., Beatty, D., & Contrada, R. J. (2009). Coping with racism: A selective review of the literature and a theoretical and methodological critique. *Journal of Behavioral Medicine*, *32*(1), 64–88. doi:10.1007/s10865-008-9193-0

Brondolo, E., Byer, K., Gianaros, P. J., Liu, C., Prather, A.A., Thomas, K., Woods-Giscombe, C.L., (2017). Stress and health disparities. American Psychological Association, APA Working Group on Stress and Health Disparities, 1-64.

Carr, D., & Friedman, M. A. (2005). Is Obesity Stigmatizing? Body Weight, Perceived Discrimination, and Psychological Well-Being in the United States. *Journal of Health and Social Behavior, 46*(3), 244-259. doi:10.1177/002214650504600303

Coleman, A., Neil, J. O., & Ferris, A. M. (2019). The mediation effect between everyday discrimination, gender role conflict, emotional eating, and obesity in African American fathers and sons, *20*(2), 182–193.

Community Health Worker (2012). Community Health Worker Health Disparities Initiative. *National Heart, Lung, and Blood Institute*, 1-7.

Cooley, A. J. (2015). "Eating with Negroes": Food and Racial Taboo in the Twentieth Century South. *Southern Quarterly*, *52*(2), 69–89. Retrieved from https://search-ebscohost-com.jerome.stjohns.edu/login.aspx?direct=true&db=aph&AN=109277070&site=ehost-live

Corral, I., & Landrine, H. (2012). Racial discrimination and health-promoting vs damaging behaviors among African-American adults. *Journal of Health Psychology*, *17*(8), 1176–1182. https://doi.org/10.1177/1359105311435429

Cozier, Yvette C., et al. "Perceived Racism in Relation to Weight Change in the Black Women's Health Study." *Annals of Epidemiology*, vol. 19, no. 6, 2009, pp. 379–387., doi:10.1016/j.annepidem.2009.01.008.

Flegal, K. M., Kruszon-Moran, D., Carroll, M. D., Fryar, C. D., & Ogden, C. L. (2016). Trends in Obesity Among Adults in the United States, 2005 to 2014. *Jama, 315*(21), 2284. doi:10.1001/jama.2016.6458

Freeman, A. (2007). Fast Food: Oppression Through Poor Nutrition. *California Law Review*, *95*(6), 2221–2259. Retrieved from https://search-ebscohost-com.jerome.stjohns.edu/login.aspx?direct=true&db=aph&AN=31317284&site=ehost-live

Ghosh-Dastidar, B., Cohen, D., Hunter, G., Zenk, S. N., Huang, C., Beckman, R., & Dubowitz, T. (2014). Distance to Store, Food Prices, and Obesity in Urban Food Deserts. *American Journal of Preventive Medicine*, *47*(5), 587–595. https://doi.org/10.1016/j.amepre.2014.07.005

Gibbons, F. X., Kingsbury, J. H., Weng, C.-Y., Gerrard, M., Cutrona, C., Wills, T. A., & Stock, M. (2014). Effects of perceived racial discrimination on health status and health behavior: a differential mediation hypothesis. *Health Psychology: Official Journal of The Division of Health Psychology, American Psychological Association*, *33*(1), 11–19. https://doi.org/10.1037/a0033857

Gibbons, F. X., & Stock, M. L. (2017). Perceived Racial Discrimination and Health Behavior: Mediation and Moderation. *Oxford Handbooks Online*. doi:10.1093/oxfordhb/9780190243470.013.17

Gilbert, P. A., & Zemore, S. E. (2016). Discrimination and drinking: A systematic review of the evidence. *Social Science and Medicine*, *161*, 178–194.

Hales, Craig. Carroll, Margaret. Fryar, Cheryl. Ogden, Cynthia. (2017, October). *Prevalence of Obesity Among Adults and Youth: United States, 2015-2016.* Retrieved from https://www.cdc.gov/nchs/data/databriefs/db288.pdf

Hunte, H. E. R. (2011). Association Between Perceived Interpersonal Everyday Discrimination and Waist Circumference Over a 9-Year Period in the Midlife Development in the United States Cohort Study. *American Journal of Epidemiology*, *173*(11), 1232–1239. https://doi.org/10.1093/aje/kwq463

Johnson. (2013). Association of perceived racial discrimination with eating behaviors and obesity among participants of the SisterTalk Study. *J Natl Black Nurses Assoc.*, *23*(1), 34–40.

Johnson, Wood. (2018, September). *Obesity Rates: Adults.* https://stateofchildhoodobesity.org/adult-obesity/

Kirkpatrick, S. I., Dodd, K. W., Reedy, J., & Krebs-Smith, S. M. (2012). Income and race/ethnicity are associated with adherence to food-based dietary guidance among US adults and children. *Journal of The Academy of Nutrition and Dietetics*, *112*(5), 624–635.e6. https://doi.org/10.1016/j.jand.2011.11.012

Kwate, N. O. A., & Loh, J. M. (2010). Separate and unequal: The influence of neighborhood and school characteristics on spatial proximity between fast food and

schools. *Preventive Medicine*, *51*(2), 153–156. https://doi.org/10.1016/j.ypmed.2010.04.020

Larsson, S. C., & Orsini, N. (2014). Red Meat and Processed Meat Consumption and All-Cause Mortality: A Meta-Analysis. *American Journal of Epidemiology*, *179*(3), 282–289. https://doi.org/10.1093/aje/kwt261

Leite, F. H., de Carvalho Cremm, E., Costa de Abreu, D. S., de Oliveira, M. A., Budd, N., Martins, P. A., … Oliveira, M. A. de. (2018). Association of neighborhood food availability with the consumption of processed and ultra-processed food products by children in a city of Brazil: a multilevel analysis. *Public Health Nutrition*, *21*(1), 189–200. https://doi.org/10.1017/S136898001600361X

Mays, V. M., Cochran, S. D., & Barnes, N. W. (2007). Race, Race-Based Discrimination, and Health Outcomes Among African Americans. *Annual Review of Psychology*, *58*(1), 201–225. https://doi.org/10.1146/annurev.psych.57.102904.190212

McAfee, A. J., McSorley, E. M., Cuskelly, G. J., Moss, B. W., Wallace, J. M. W., Bonham, M. P., & Fearon, A. M. (2010). Red meat consumption: An overview of the risks and benefits. *Meat Science*, *84*(1), 1–13. https://doi.org/10.1016/j.meatsci.2009.08.029

Metzger, I. W., Salami, T., Carter, S., Halliday-Boykins, C., Anderson, R. E., Jernigan, M. M., & Ritchwood, T. (2018). African American emerging adults' experiences with racial discrimination and drinking habits: The moderating roles of perceived stress. *Cultural Diversity and Ethnic Minority Psychology, 24*(4), 489-497.

Moore, C. J., & Cunningham, S. A. (2012). Social Position, Psychological Stress, and Obesity: A Systematic Review. *Journal of the Academy of Nutrition and Dietetics, 112*(4), 518-526. doi:10.1016/j.jand.2011.12.001

Moreira, P. V. L., Baraldi, L. G., Moubarac, J.-C., Monteiro, C. A., Newton, A., Capewell, S., & O, F. M. (2015). Comparing Different Policy Scenarios to Reduce the Consumption of Ultra-Processed Foods in UK: Impact on Cardiovascular Disease Mortality Using a Modelling Approach. *PLoS ONE*, *10*(2), 1–14. https://doi.org/10.1371/journal.pone.0118353

Mwendwa, D. T., Gholson, G., Sims, R. C., Levy, S.-A., Ali, M., Harrell, C. J., … Campbell, A. L., Jr. (2011). Coping with perceived racism: a significant factor in the development of obesity in African American women? *Journal of The National Medical Association*, *103*(7), 602–608. Retrieved from https://search-ebscohost-com.jerome.stjohns.edu/login.aspx?direct=true&db=cmedm&AN=21999035&site=ehost-live

O'Connor, D. B., Jones, F., Conner, M., McMillan, B., & Ferguson, E. (2008). Effects of daily hassles and eating style on eating behavior. *Health Psychology: Official Journal of The Division of Health Psychology, American Psychological Association*, *27*(1S), S20–S31. https://doi.org/10.1037/0278-6133.27.1.S20

Ong, A., Fuller-Rowell, T., & Burrow, A. (2009). Racial discrimination and the stress process. Journal of Personality and Social Psychology, 96(6), 1259-1259. doi:10.1037/a0015335

Pan, A., Sun, Q., Bernstein, A. M., Schulze, M. B., Manson, J. E., Willett, W. C., & Hu, F. B. (2011). Red meat consumption and risk of type 2 diabetes: 3 cohorts of US

adults and an updated meta-analysis. *The American Journal of Clinical Nutrition*, *94*(4), 1088–1096. https://doi.org/10.3945/ajcn.111.018978

Pascoe, E. A., & Richman, L. S. (2011). Effect of discrimination on food decisions. *Self and Identity, 10*(3), 396–406. https://doi.org/10.1080/15298868.2010.526384

Satia, J. A. (2009). Diet-related disparities: understanding the problem and accelerating solutions. *Journal of The American Dietetic Association*, *109*(4), 610–615. https://doi.org/10.1016/j.jada.2008.12.019

Slocum, R. (2011). Race in the study of food. *Progress in Human Geography*, *35*(3), 303–327. https://doi.org/10.1177/0309132510378335

Stock, M. L., Gibbons, F. X., Walsh, L. A., & Gerrard, M. (2011). Racial Identification, Racial Discrimination, and Substance Use Vulnerability Among African American Young Adults. *Personality and Social Psychology Bulletin, 37*(10), 1349-1361. doi:10.1177/0146167211410574

Stuckler, D., McKee, M., Ebrahim, S., & Basu, S. (2012). Manufacturing epidemics: the role of global producers in increased consumption of unhealthy commodities including processed foods, alcohol, and tobacco. *Plos Medicine*, *9*(6), e1001235. https://doi.org/10.1371/journal.pmed.1001235

Sutin, A., Robinson, E., Daly, M., & Terracciano, A. (2016). Weight discrimination and unhealthy eating-related behaviors. *Appetite*, *102*, 83–89. https://doi.org/10.1016/j.appet.2016.02.016

Unger, J. B., Reynolds, K., Shakib, S., Spruijt-Metz, D., Ping Sun, & Johnson, C. A. (2004). Acculturation, Physical Activity, and Fast-Food Consumption among Asian-

American and Hispanic Adolescents. *Journal of Community Health*, *29*(6), 467–481. https://doi.org/10.1007/s10900-004-3395-3

USDA (2019). 2015-2020 Dietary Guidelines for Americans [PDF]. Xiii-144.

Vilija, M., & Romualdas, M. (2014). Unhealthy food in relation to posttraumatic stress symptoms among adolescents. *Appetite*, *74*, 86–91. https://doi.org/10.1016/j.appet.2013.12.002

Vines, A. I., Baird, D. D., Stevens, J., Hertz-Picciotto, I., Light, K. C., & McNeilly, M. (2007). Associations of abdominal fat with perceived racism and passive emotional responses to racism in African American women. *American Journal of Public Health*, *97*(3), 526–530. Retrieved from https://search-ebscohost-com.jerome.stjohns.edu/login.aspx?direct=true&db=cmedm&AN=17267721&site=ehost-live

Yang, T. C., Chen, I. C., Choi, S. won, & Kurtulus, A. (2018). Linking perceived discrimination during adolescence to health during mid-adulthood: Self-esteem and risk-behavior mechanisms. *Social Science and Medicine*, (June), 0–1.

Zenk, S. N., Schulz, A. J., Israel, B. A., Mentz, G., Miranda, P. Y., Opperman, A., & Odoms-Young, A. M. (2014). Food shopping behaviours and exposure to discrimination. *Public Health Nutrition*, *17*(5), 1167–1176. https://doi.org/10.1017/S136898001300075X

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