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The Biopsychosocial Impact of Racial Discrimination Among African Americans

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This is to certify that the doctoral dissertation by

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Abstract

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Dissertation Submitted in Partial Fulfillment

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Abstract

The purpose of this study was to explore the relationship between racial discrimination and anger, stress, and obesity. The stress-disease model provided a theoretical perspective of the biological, psychological, and social pathways from stress. Past research regarding the correlation between racial discrimination, anger, stress, and obesity reported a possible connection, but results have been mixed. This research expanded upon existing literature that proposed that blatant or subtle experiences of racial discrimination are pathways to mental and physical health consequences. The hypothesis was that there was a significant relationship between racial discrimination and the levels of stress, anger, and obesity. Racial discrimination was measured with the Individualized Race-Related Stress Scale, Dimensions of Anger Reactions, Perceived Stress Scale, and self-reported body mass index (BMI). The sample consisted of 108 African American adults 18 to 65 years old who resided in the United States. Multiple linear regression was implemented to analyze the relationship between the variables. Analyses revealed that race-related stress was significantly related to stress, anger, and BMI. This study could lead to positive social change by providing useful information related to future stress and weight management for African Americans.

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Dedication

I dedicate my dissertation to my husband and three children, Thylia, Jaylen, and Nora, as they have shown patience and unconditional support throughout the process.

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Chapter 1: Introduction to the Study

The United States continues to be identified as a country for all seeking opportunities; however, it fails to disclose that opportunities have remained limited to African Americans. Racial discrimination continues to be a consistent and prevailing conflict for African Americans in North America (Clark et al., 1999). This study focused on the impact of perceived racial discrimination between physical and mental health among African Americans. I explored the adverse outcomes involved with perceived racial discrimination in relation to obesity, anger, and stress.

Perceived racial discrimination has demonstrated both a positive association (Cozier et al., 2014; Keith et al., 2017;) and no association (Rosenthal et al., 2013) to obesity. There have been numerous incidences of psychosocial factors, such as neighborhood segregation, that have been contributed to obesity (Cozier et al., 2014). Studies researching racial discrimination have revealed mixed findings in the effects of increased anger, resulting in an inadequate amount of research using scales that do not fully capture the various components of anger (Abraham et al., 2015). In major sections of this study, I focused on anger through a detailed assessment of the Dimensions Anger Reactivity Scale, obesity using the Body Mass Index, stress from the Perceived Stress Scale, and forms of racial discrimination among African Americans.

Substantial research and government policies have been implemented to eliminate racial/ethnic discrimination; however, this discrimination still exists. African Americans are subjected to racial discrimination on multiple platforms. Due

to institutional racism, African Americans experience institutional discrimination in, for instance, subpar housing, lower-quality education, low wages, and exclusion from skilled labor (Graff, 2011; Williams & Mohammed, 2013). According to Williams and Mohammed (2013), everyday discrimination is presented in different environments deeply rooted in cultural and institutional arrangements motivated to undervalue people of color and represent them in a negative image (i.e., violent or lazy), thereby influencing relational interactions with European Americans. Individuals who suffer from policies developed to promote negative stereotypes and discrimination that are pathogenic and cultivate adverse psychological responses and internalized racism known as cultural racism (Williams & Mohammad, 2015). According to Williams (2012), the United States is a racialized country, where European Americans have more advantages than the racially stigmatized population with worse health.

I expanded on the minimal research on racial discrimination associated with anger, obesity, and stress in this study. This research focused not only on race-related stressors but also on the adverse mental and physical outcomes from discrimination. I focused on contributing factors associated with racial bias, such as anger, stress, and obesity. The stressors of racial discrimination are essential to research due to the continuous experiences of discrimination in the workplace, interactions with police, and social media. The media has depicted African Americans as ignorant, thugs, and criminals (Acevedo-Garcia, 2003). Some media outlets depict African Americans negatively, which is considered an educational tool

for European Americans (Acevedo-Garcia, 2003).. European Americans who have minimal interactions with African Americans use the information provided by media outlets and draw negative assumptions to all African Americans. Media outlets have exacerbated and developed negative attitudes on the part of European Americans towards African Americans, which could explain negative behaviors towards African Americans in the United States.

There has been a dramatic increase in the incidence of physical and verbal violence towards African Americans in the United States. According to Smiley and Fakunle (2016), law enforcement has reported an escalating amount of death and violence toward unarmed Black males. African American communities are frequently subjected to harassment and police brutality due to the color of their skin (Smiley & Fakunle, 2016). There has been an increasing outcry from African Americans and other ethnic groups about ongoing blatant racial discrimination (Smiley & Fakunle, 2016). These issues are relevant to this research because it demonstrates the negative perception that is often developed and ongoing towards African Americans today.

Background

The historical research of racial discrimination among African Americans is abundant. There have been over 100 years of ethnic health disparities in the United States. For instance, African Americans often endure higher rates of comorbidity and severe progression of acute diseases at higher percentages of mortality than European Americans (Williams & Mohammed, 2013). William and Mohammed

(2008) provided insight into numerous variables involved with racial discrimination, such as residential segregation and health disparities affected by racism. William and Mohammed (2008) focused on institutional discrimination, violence, criminal victimization, financial stress, relationship stress, differential access to resources, and assessing the different levels associated with racial bias. In another study, Case (2012) provided an understanding of White privilege and invisible whiteness to individuals classified as high social ranking in North America. Case (2012) explained the impact of racial oppression and how European Americans are educated about racism and unconscious racism. Case implemented strategies to help European Americans identify their White privilege and gain an understanding of racism. Furthermore, Graff (2011) provided details about disparities in imprisonment, unemployment, and income gaps that continue to be predominant in the United States among African Americans. These conflicts are described more in Chapter 2.

Racial discrimination research has focused on the impact of racism on different levels (i.e., cultural, institutional, individual, and global racism) by using the Index of Race-Related Stress (IRRS; Lewis-Coles & Constantine, 2006; Odafe et al., 2017; Utsey & Hook, 2007). The IRRS measures stress associated with dissimilar experiences of racism and discrimination and also takes into account stressful events that happen to the participant and their family members on a four-component structure (i.e., cultural, institutional, individual, and global) of racism over their lifetime (Utsey & Ponterotto, 1996). The IRRS has the capability to measure the impact of racism and discrimination among African Americans from the

premises of their psychological well-being (Utsey & Ponterotto, 1996). The IRRS measure is based on the model of stress that has been implemented in various studies of racial discrimination (Lazarus & Folkman, 1984).

Additional research is essential on psychobiological influences that are impacted due to perceived racial discrimination among African Americans. Biological research has concentrated on stress-evoked physiological reactions, such as cardiovascular functioning and physiological stressors (Krantz & Manuk, 1984). Individuals have demonstrated higher blood pressure measurements and premature cardiovascular mortality (Carroll et al., 2012; Chida & Steptoe, 2010) due to the response to stress from racial bias. Krantz and Manuck (1984) offered a theoretical explanation that connected cardiovascular reactivity and perceived discrimination to emotional stress as a potential variable for cardiovascular disease development. Individuals are more susceptible to heart disease because the stress response from racial discrimination over time weakens their immune systems' ability to fight diseases. Krantz and Manuk's research was able to link behaviorally induced cardiovascular alteration connected to coronary heart disease to different patterns of physiologic response from various situations. One of the most critical aspects distinguished by Krantz and Manuk is that coronary heart disease has been linked to physiologic response, particularly stress and the adverse impact it has on the health. Individuals who experience discrimination are endorsing stress as a response and are experiencing the anger trait. Merritt et al. (2006) focused on African Americans who demonstrated an increase in blood pressure during an ambiguous event perceived as

racism. This study produced high levels of racism and anger recall; thus, the research suggests that due to perceived racism, even the subtle racism is a psychosocial stressor that correlates to elevated cardiovascular response and is associated with adverse health outcomes (Merritt et al., 2006).

Few studies have addressed the different components (i.e., institutional, individual, cultural, and global) of racial discrimination and its impact on obesity (i.e., body mass index [BMI]), anger, and stress among African Americans. The stress disease model highlights the biological, psychological, and social factors involved with stress and how it pertains to racial discrimination. This research was intended to extend the knowledge of racial discrimination and the different levels of how it impacts physical and mental health. I used a self-report response by understanding racism on four distinct levels of institutional, individual, cultural, and global. Nevertheless, limited contemporary studies have focused on investigating racial disparities from a biopsychosocial perspective. Those studies provided guidance and clarification for future research on this issue.

Statement of the Problem

African Americans in the United States are affected by racial discrimination or other forms of discrimination daily. Some researchers have focused on the correlation between perceived racial discrimination and obesity (Cozier et al., 2014; Keith et al., 2017; Rosenthal et al., 2013)). Other researchers have focused on the association of perceived discrimination on negative emotional responses (Assari, 2017; Gibbons et al., 2014; Lewis et al., 2015). An evaluation of this literature has

revealed that the results of these studies have been mixed on the question of whether there is a pathway from perceived discrimination and physical effects, such as obesity or negative emotional responses. Therefore, the problem is that while the significance of perceived racial discrimination is understood, the potential impact on the psychological and biological health of African Americans remains unknown.

Some researchers have examined whether there is an association between BMI and perceived discrimination among African American communities that may contribute to higher mortality rates. These scholars have explored the relationship between discrimination and obesity among adults and adolescents. Keith et al. (2017) used a sample of 6,082 interviews collected from the National Survey of American Life to explore if there is a connection between racial discrimination, skin tone, and BMI. Keith et al. found a relationship between skin complexion and discrimination; however, they also found that discrimination was unrelated to BMI ($p < .001$ for weight-based, $p = .008$ for race-based). Their study helped identify variations in the experience of discrimination that African Americans have due to their skin tone, but it failed to establish a connection between perceived racial discrimination and physical effects.

While the study by Keith et al. (2017) suggested no connection between experiencing discrimination and BMI, Rosenthal et al. (2015) conducted a study over an 11-year time frame using 644 participants that focused on a correlation between race-based bullying, negative emotions, and BMI. Rosenthal et al. found that there is a positive association between race-based bullying and negative

emotional symptoms. They discovered that the negative emotions led to a greater BMI due to bullying. They suggested that race-based bullying provokes negative emotional responses that are in turn associated with greater weight and adverse health outcomes (Rosenthal et al., 2013). Rosenthal's team also determined that chronically stigmatized adolescents experience negative outcomes that are both physical and emotional. This study is significant because it recognizes that stress from racism is linked to adverse emotional and physical outcomes. However, they collected their data during two different occurrences: racial bullying and mental health outcomes during one event and later physical health outcomes. Rosenthal et al. identified that future research should focus on collecting data subsequently, which I aimed to do in this study.

Furthermore, in a longitudinal study of 4,315 Black women, Cozier et al. (2014) researched the relationship between experiences of racism and BMI. Their research focused on lifetime experiences of racism from 1997 to 2009; results for low racism were 95% confidence interval, $p < 0.01$, and high racism 95% confidence interval, $p < 0.01$(Cozier et al., 2014). Cozier et al. found that greater experiences of racism contributed to obesity among African American women. They also found that neighborhood segregation was positively associated with obesity; individuals were consistently subjected to greater racism due to poor quality housing opportunities. This research is important because it recognizes that African Americans are subjected to physiological changes due to racism. The above studies were able to

identify some positive associations between perceived racism and adverse health outcomes.

Scholars have also recognized that experiencing discrimination triggers emotions such as anger, frustration, and an overall stressful experience that can cause some critical risk to an individual's mental and physical health (Lewis et al., 2015). In a longitudinal study of an 11-year sample of 5,598 Hispanic, Black, White, and Chinese participants, Lewis and his colleagues found that individuals who experience discrimination are not only undergoing stress as a response but are experiencing anger (Lewis et al., 2015). Abraham et al. (2015) researched whether the variables of trait anger and anxiety that result from experiencing discrimination predict Type II Diabetes, a contributing factor for cardiovascular disease. They found that a greater trait of anger is indeed a risk factor for Type II diabetes and increased waist circumference, such that the higher the anger reaction, the greater the risk for diabetes. Abraham et al. (2015) also found that individuals who had greater anger indulged in consuming more calories and were less physically active, resulting in a greater waist circumference.

Additionally, Abraham et al. (2015) identified a positive association between anxiety and Type II diabetes due to discrimination. Abraham et al. (2015) suggested that anger can be a contributing factor to obesity, and there is not a reliable measurement that measures variations of anger. Abraham's (2015) study also did not focus on a sample that is only African Americans.

In a 5-year study of 176 participants (i.e., 76 African Americans and 100 White Americans), Gibbons et al. (2014) investigated differences in allostatic load (wear and tear on the body) due to racial/ethnic disparities in a sample of 680 African American middle-aged women. They focused their research on whether racial discrimination causes experiences of anger and depression that affect health practices (e.g., sleep quality). Gibbons et al. found that discrimination is associated with increased experiences of anger and decreased sleep quality (i.e., confidence interval-0.01). Gibbons et al. concluded that African Americans have a greater allostatic load than Whites due to the racial/ethnic disparities that they are subjected to in their daily lives. They were able to identify that Black women who have encountered racial discrimination internalize or externalize those negative emotions (e.g., anxiety and depression). Thus, the negative emotions cause morbidity due to the individual's physiological deterioration from racial discrimination. Gibbons et al. helped lay the groundwork for this research in so far as it revealed that racial discrimination causes psychological distress, causing mental deterioration that affects the physical anatomy. However, Gibbons et al. focused only on Black women in Georgia and Iowa. Gibbons et al. research was limited as they only focused on women in their sample.

Purpose of the Study

The purpose of this study was to explore the relationship between perceived racial discrimination, stress, anger, and obesity among African Americans. I hypothesized that African Americans who have experienced increased

discrimination would increase symptoms of anger and stress that would cause an increase in visceral abdominal fat. In this study, I aimed to determine if there is a significant difference in racial discrimination levels (dependent variable among African Americans based on the independent variable of obesity, anger, and stress). Therefore, African Americans who have greater experiences of perceived racial discrimination experience greater adverse mental and physical health outcomes.

Research Questions and Hypotheses

The purpose of this study was to explore the relationship between race-related stress (e.g., subscales: experiences of racism by specific daily events and discrimination, such as institutional, individual, cultural, and global), perceived stress (Perceived Stress Scale; [PSS]), anger (Dimension of Anger Reactions Scale; [DAR]) and obesity (BMI; Atkins, 2014).

This study addressed the following research questions:

Research Question (RQ)1 Quantitative: Does greater race-related stress measured by the IRRS (racism experiences by specific daily events and discrimination, such as institutional, individual, cultural, and global) influence BMI?

Null Hypothesis (H_0)1: There is no significant relationship between race-related stress and BMI.

Alternative Hypothesis (H_a)1: There is a significant relationship between race-related stress and BMI.

Research Question (RQ)2 Quantitative: Does greater race-related stress measured by the IRRS (racism experiences by specific daily events and

discrimination, such as institutional, individual, cultural, and global) influence anger measured by the DAR (individual experiences of perceived anger due to health, social relationships, and work performance)?

Null Hypothesis (H_0) 2: There is no significant relationship between race-related stress and anger.

Alternative Hypothesis (H_a)2: There is a significant relationship between race-related stress and anger.

Research Question (RQ)3 Quantitative: Does greater race-related stress measured by the IRRS (racism experiences by specific daily events and discrimination, such as institutional, individual, cultural, and global) influence perceived stress measured by the PSS (stress that is influenced by daily stressors, alteration in coping resources, and major events)?

Null Hypothesis (H_0) 3: There is no significant relationship between race-related stress and perceived stress.

Alternative Hypothesis (H_a)3: There is a significant relationship between race-related stress and perceived stress.

Research Question (RQ)4 Quantitative: Do age, gender, anger, perceived stress, and race-related stress all affect BMI?

Null Hypothesis (H_0) 4: There is no significant relationship between age, gender, anger, perceived stress, race-related stress, and BMI.

Alternative Hypothesis (H_a)4: There is a significant relationship between age, gender, anger, perceived stress, race-related stress, and BMI.

Theoretical Foundation

The traditional epidemiological approach of the model of stress and disease focuses on the different variations of stress triggered by an individually experienced life event (Cohen et al., 2016). How an individual perceives that life event defines the level of stress associated with that event. In the seminal work of Holmes and Rahe (1967), an individual's ability to adapt to a stressful event is associated with variations in their perception of the stressful event and their ability to adjust based on their judgment about that occurrence. In other words, over time, an individual can be sensitized to the stress they are subjected to. The stress could occur over a time span or single occurrence and based on how they interpret the threat is the determination of how they are affected (Cohen et al., 2016). The epidemiological approach also focuses on the experience of a stressful event and how the individual's exposure to that event is identified to be threatening based on their perception.

Psychological Approach of the Stress and Disease Model

The psychological approach recognizes that everyone who experiences a stressful event interprets that event differently. Some individuals may be impacted negatively by that event, but this does not apply to all. Lazarus and Folkman (1984) examined how individuals' stress appraisal has variations. An individual's ability to have access to resources during a stressful event can affect their ability to cope due to a lack of resources. The threat appraisal considers chronic and single occurrences of an individual's interpretation of the severity of that threat. Their ability to cope with that threat involves their cultural and belief system, which dictates their

probability of coping with that stressful event (Cohen et al., 2016). Coping appraisals after the threat event include variation in emotional and behavioral responses from the perceived threat (Cohen et al., 2016). The stress and disease model evaluates how threatening or problematic an individual's environment is to the related emotional responses (Lazarus, 2006).

Lazarus (2006) proposed the stress and coping model, which acknowledged that biopsychosocial factors play a significant role in producing adverse health outcomes. Initially, the researcher's primary appraisal must assess the dangerous conditions that individuals face, and the secondary appraisal must assess how individuals respond to that environment concerning resources for coping. Suppose the threat of their environmental conditions surpasses their coping resources. In that case, they are at a higher risk of reacting with negative emotions that lead to a biological response that can influence disease onset. Another variable that individuals face is the anticipation of the environmental stressor that can provoke an adverse effect and biological response (Baum & Greenberg, 1975; Baum & Koman, 1976). Some studies have concluded that the anticipation of stressors is more damaging than the stressor itself and have found data that individuals who anticipate stressors have an increased negative response (Baum & Greenberg, 1975; Baum & Koman, 1976). People who suffer from perceived racial discrimination in their work environment daily have an intensified risk for disease due to this anticipation.

Biological Approach of the Stress and Disease Model

The biological approach emphasizes that the physiological reaction from long and short-term exposure to a perceived threat is conducive to maladaptation and risk for disease (Cohen et al., 2016). Selye's (1956) early works focused on how stress can cause the activation of the neuroendocrine axes and the hypothalamic-pituitary-adrenal (HPA) system. Stress induces physiological responses that are commonly measured by indicators such as cortisol, an HPA-derived hormone, and sympathoadrenal medullary mediators, norepinephrine, and epinephrine, which cause high blood pressure and heart rate variability (Cohen et al., 2016). Individuals suffering from chronic stressful events are at higher risk of developing diseases due to changes in the biological system that put them at risk and lower their immune systems to fight disease. These changes can increase inflammation, a contributing factor for heart disease, and decline respiratory functioning (Cohen et al., 2016).

Individuals repeatedly face stressful events develop systematic biological and cellular changes contributing to disease, such as altered metabolic, immune, cardiovascular, and respiratory functioning (Cohen et al., 2016). The intensity of a stressor provokes a biological response that develops harmful psychophysiological responses that cause deterioration and mental and physical health (Cohen et al., 2016). The stress and disease model paves an understanding of biopsychosocial in reference to stress. Racial discrimination can exacerbate biological and psychological responses due to stress. It provides an overview of how individuals who lack access to resources for coping are at higher risk for adverse mental and

health outcomes. The stress and disease model provided a foundation for me to understand how stress, even if one occurrence, can negatively impact African Americans. Further detailed information on the stress and disease model and its alignment with the research questions and hypotheses is provided in Chapter 2.

Definition of Terms

Anger: Hostility and aggression are characterized as negative beliefs and attitudes towards others, developing mistrust (Parrott, 2014). Aggression from anger can cause pain or harm from fear or a dominance struggle (Parrott, 2014). In this study, I used the DAR to pinpoint anger, which focuses on individual experiences of perceived anger due to negative influence on health, social relationships, and work performance (see Novaco, 1975).

Body mass index (BMI): A measurement that calculates one's body weight and height using a mathematical formula weight (kg/ height (m2). According to Mercadal (2015), BMI is a reliable method for assessing individuals' health risks for chronic diseases, including heart disease and diabetes.

Cardiovascular disease: A condition of the heart that involves narrowed or blocked blood vessels that can often put an individual at risk for stroke, heart attack, chest pain (angina), coronary artery disease, heart rhythm problems (arrhythmias; CDC, 2017). In this study, I identified the risk of cardiovascular disease using associated factors identified by Ezzati et al. (2015), who found that obesity has been linked to different risks associated with cardiovascular disease.

Race-related stress: The stress resulting from the "occurrence and perceived the magnitude of specific events of racism and discrimination that African Americans potentially experience in their daily lives" (Utsey & Ponterotoo, 1996, p. 491). In this study, I used race-related stress as identified in the IRRS (see Utsey & Ponterotto, 1996).

Stress: An emotion towards an event that an individual has interpreted as having a negative impact (Cohen et al., 2016). The PSS has been identified as an accurate measurement to predict heart disease, mortality, and mobility (Cohen et al., 2016).

Nature of the Study

I employed a quantitative research methodology in this study. Quantitative research allowed me to explore whether there is a relationship between race-related stress, perceived stress, anger, and obesity. I used a quantitative methodology to collect data through a web-based survey from African Americans in the United States. I obtained data from African American adults 18 to 65 years old. The IRRS (Utsey & Ponterotto, 1996) is a 46-item instrument used to collect different data levels of stress congruent to the experiences of racism and discrimination in African Americans. The measurement considers the appraisal of racist events and the frequency of exposure. The scale has four subscales of racism, identified as individual, global, institutional, and cultural racism, that are scored independently (Atkins, 2014).

According to Atkins (2014), the measurement uses adequate coefficient alphas and represents reliable and valid factors for the IRRS. The measurements were reliable in scale and subscales and met acceptable criteria (see Atkins, 2014). Additionally, the IRRS scale has been used in the United States to compare Black Americans and European Americans.

The variables integrated into this study were the independent variables: obesity, anger, and stress. The dependent variable was perceived racial discrimination. Clarifying how significant the research problem is, the central point of significance was to examine the correlation between perceived racial discrimination, anger, perceived stress, and obesity (i.e., BMI) with the aim of gaining an understanding of rising percentages of cardiovascular disease in African Americans.

Significance

This research addressed the gap in the literature by exploring how racial discrimination has an impact on stress, anger, and obesity among African Americans. This study was unique due to its implementation of using valid and reliable measurements such as BMI, DAR, IRRS, and PSS in comparison to previous research that focused primarily on obesity, anger, or stress. In this study, I focused on capturing the variations of racial discrimination on a multidimensional level: obesity, anger, and stress. Abraham et al. (2015) stated that one of the weaknesses in their study was that they did not fully capture the variations of anger. By using the DAR, I obtained an overview of individual experiences of anger due to

negative influences on health, social relationships, and work performance that individuals feel due to racial discrimination. This study applied measurements that have been identified as valid and reliable in the population of African Americans. By focusing on African Americans, I examined variations within the African American community by gaining insight into the variations of perceived discrimination that impact the psychophysiological pathways. Lee et al. (2016) stated that future studies should focus on the effects of psychosocial stress and psychological distress on cardiovascular health. Thus, I followed Lee et al.'s advice by focusing on the effects of psychosocial stress, particularly perceived racial discrimination, its association with psychological distress (e.g., stress and anger), and its impact on cardiovascular health (e.g., obesity). I aimed to gain an understanding of how discrimination may contribute to psychological distress to predict the prevalence of cardiovascular disease. This study may provide implications for future research on how to alter those factors to improve the health of African Americans.

Social Change Implications

By gathering information concerning the effects of racial discrimination among African Americans, this study may provide an understanding of how psychosocial factors affect cardiovascular health. This study could increase African Americans' awareness of these factors and help them identify coping styles that promote more positive health outcomes. Psychologists could also be encouraged to promote social change due to the ongoing mortality rates in the African American community. There must be a deliberate and intentional effort to address these

negative experiences and their negative impact on the cardiovascular system. By gaining awareness about the psychosocial factors that affect African American communities, policymakers will have the research they need to advance practical policy solutions. Psychologists and mental health professionals should focus on different techniques to assist the African American population to decrease and manage their stress and anger in these toxic environments. Professionals should inquire about experiences of perceived racism and thereby gain an understanding of stressors in African Americans' lives. This comprehension may be productive in developing behavioral health and physical health-related programs focused on managing stress properly and decreasing obesity and weight-related disease in the African American population. Furthermore, increasing awareness can create a positive change by having an open dialogue to allow African Americans to pursue more efficient coping methods, which can precede an overall healthier lifestyle.

Assumptions

There are some assumptions associated with this research study. First, I assumed that participants completed surveys and measurements with integrity and accuracy. In other words, participants provided accuracy of self-reports of daily stress levels, BMI, anger levels, and perception of racism. Additionally, I assumed that participants could comprehend all questions asked in the surveys. I also assumed that individuals who suffer from acute or chronic stress from racism would adversely influence their psychophysiological wellness. Also, I expected that this study could be replicated to similar minority populations.

Delimitations and Limitations

The current literature provided an overview of the topics that warrant emphasis on health disparities among African Americans. Moreover, it explicitly includes the impact that racial discrimination may have on psychophysiological wellbeing. This factor in identifying a correlation of the psychosocial determinant (i.e., racial discrimination) impacts physical (i.e., obesity) and mental health (i.e., anger and stress). There is evidence that racial unfairness may significantly impact overweight and increase anger and stress (Monk, 2015).

The population was delimited to African American adults residing in the United States. Individuals who identified as any race other than African American or Black were not included in this study. Participants residing outside of the United States were included in the exclusion criteria. Additionally, adults who were not between the ages of 18 and 65 and who were unable to read questions in English were excluded. The sample was purposeful, as participants were presented with the option of taking the research survey through an online survey. Thus, individuals who did not have internet access would not have had the opportunity to participate in the study. An additional limitation of this study was that the surveys were based on self-report. According to Creswell and Creswell (2018), self-report questionnaires might have response bias; therefore, results may be inaccurate.

By excluding other minority populations in this study, it limited discernment to cross-culturally regarding racial discrimination among various cultures may provide meaningful information across cultures that could give helpful knowledge of

the impact of mental and physical health. Another limitation was that the self-report of BMI was not monitored by a health professional for efficiency and accuracy of measurements.

Additional limitations are that the study was conducted as a correlational design and did not imply causation between variables. Generalization of the results should be interpreted with caution because participants were recruited from Survey Monkey. Reasonable measures were taken to address all limitations by giving the participants precise and clear directions when completing survey questions and completing measurements.

Summary

In this study, I could not ascertain whether racism is the cause of adverse health consequences, but I assessed whether racism is related to adverse mental and health outcomes among African Americans. I developed this research on prior work and provided an essential contribution to the literature investigating the complex relationship between race-related stress, stress, anger, and obesity, providing evidence-based data on health-stress relationships among African Americans. Further researching the health-racism relationship can help illuminate the disparities in health context for African Americans.

Chapter 2 addressed the history of race-related stress, general perceived stress, anger, and obesity in African Americans. The chapter provided a comprehensive summary of traditional epidemiologic, biological, and psychological approaches of the model of stress and disease, which is the groundwork for the

theoretical framework and includes Lazarus's theory of stress appraisal. I discussed information in reference to chronic stress and the biological and psychological stress responses to racial discrimination. Chapter 2 contained literature of opposing views disputing the outcomes of the research. Finally, I concluded the chapter with the influence and implications of past research.

In Chapter 3, I will explain the methodology implemented to investigate the research questions. I describe the application of the correlational analysis as a reliable method to investigate the probability of a correlation between discrimination and stress, anger, and obesity. This chapter also provides an explanation of measures, ethical considerations, procedures, analysis of data, and sample population.

Chapter 2: Literature Review

Introduction

Racial discrimination is a sustaining struggle among African American communities dominated by the European race (Bassett, 2017; Donnelly, 2016; Williams et al., 2013). The persistence of racial discrimination continues to be a discussion due to its prolonged existence of challenges in the United States. Nevertheless, as a result of the decreased use of blatant expressions of racism, many individuals are under the assumption that racism is nonexistent (Ikuenobe, 2010). Moreover, comprehension of how racial discrimination influences African Americans' psychophysiological health is crucial. This literature review informs readers of different forms of racial discrimination in the United States. To conclude, I merge traditional literature by synthesizing the comprehensive framework that addresses all of these constructs (e.g., BMI, racial discrimination, anger, and stress).

The purpose of this literature review was to provide current literature available on racial discrimination, stress, anger, and obesity that pertains to African Americans. The model of stress and disease was the theoretical framework foundation of this research. This literature was categorized by subjects and initiated with a discussion of the constructs of discrimination, anger, stress, and obesity. Afterward, information about the stress and disease model and the Lazarus stress, appraisal, and coping theory are provided. Also, information was provided emphasizing the correlation between these constructs follows.

In the following literature review, information pertinent to the purpose of the quantitative study on the impact of racial discrimination among African Americans is evaluated. This chapter includes the literature search strategy, the conceptual framework of the stress-disease model, and a literature review on key constructs, such as racial discrimination, waist to hip ratio, anger, and stress. The empirical evidence supports racial discrimination as a potential precipitating factor for African Americans' adverse mental and physical health outcomes. Furthermore, similar literature among the Latino and Native American populations was reviewed to determine how racial discrimination may operate differently among these groups. Additionally, the results indicated racial discrimination provoked anger, increased stress and weight. Finally, I conclude the chapter with an overview of major themes in the literature, the gap of current information within the discipline, information that is known, and an introduction to the study's methodology.

Literature Search Strategy

The research for the literature review was collected through various databases from the library of Walden University: PsycINFO, PsychBooks, PsycArticles, PsycCritiques, PsycTest, and SocINDEX databases; additional searches were conducted using PubMed, MEDLINE, Google Scholar, and ProQuest Central. Literature gathered was from scholarly peer-reviewed journals, and data searches were focused on the years 2000 to 2018. The literature range was extended to gather literature from decades prior for the theoretical foundation. Key search terms used included *racial discrimination* (and its derivatives, including *prejudice,*

racism, colorism), *obesity* (all derivatives, including *overweight, waist to hip ratio, waist circumference, BMI*), *mental health* (*stress, anger, violent, hostile*), *North America, United States, African American,* and *Black*.

Stress and Disease Model

Cohen's (2016) stress and disease model provides a comprehensive overview of the various pathways of stress from an epidemiologic, psychological, and biological approach. Cohen integrated Lazarus and Folkman's (1984) coping and stress appraisal theory in his model to gain an understanding of the variations of perceptions of how individuals assess stress. Racial discrimination is a stressful event and understanding how the psychophysiological determinants are impacted is crucial. Cohen's model provided insight into how detrimental stress can affect the psychophysiological system.

The epidemiological traditional approach focuses on investigating the level of stress on an individualized level. This approach focuses on how an individual evaluates a stressful event. In the seminal works of Holmes and Rahe (1967), they provided the groundwork for the development of the stress and disease model. They discovered that one's appraisal of a stressful incident determines the level of mental distress that one would encounter. This includes single or reoccurring stressful events based on that individual's experience and appraisal of that event. Assessment of a single or cumulative event impacts one’s capability to adjust to the overall burden of that stressful event (Cohen et. al., 2016). The epidemiological perspective is grounded on how individuals perceive that stressful event and its influence on

their psychological or physical well-being. Individuals who perceive a stressful event negatively acquire ailment, morbidity, or mortality (Cohen et. al., 2016).

The psychological traditional approach considers a different pathway an individual may experience from a single or reoccurring stressful event, based on their reasoning (Cohen et al., 2016). Consequently, from the experience of that stressful event, one may determine their willingness to adapt or decompensate from that threat (Cohen et.al., 2016). In seminal works, Lazarus and Folkman's (1984) stress appraisal and coping theory presented a profound background of the pathways of stress perception. Additionally, concentrating on the individualized situation related to that significant event may theoretically be perceived as hazardous, detrimental, or threatening (Lazarus & Folkman, 1984).

Lazarus and Folkman's (1984) approach to defining stressful events is identified as "normatively," which disregards the event but emphasizes the individual-situation relationship to evaluate the appraisal level. In other words, the significance of the situation is meaningless if one neglects the individual's response to the event that is altered on a case-by-case basis. The appraisal process is developed from the person's response to harm, threat, and challenges (Lazarus & Folkman, 1984). Predictability is defined as a warning that indicates something harmful or painful is about to happen (Lazarus & Folkman, 1984). The role of predictable stress can impact one's appraisal because one attempts to avoid that situation. For example, an individual walking to school may regularly recognize that the police harass them enroute. As a result, anticipatory coping from the repetitious

behaviors of harassment impacts their ability to cope, causing an increase in stress levels. Novelty is defined as an individual who experiences a situation and has not developed any inference or is identified as an ambiguous event (Lazarus & Folkman, 1984). For example, this could be a child's first experience touching something hot, their lack of knowledge, and their absence of inferences. Consequently, that child develops the predictability stage to that stressful event. However, one cannot control unpredictable events. An individual's ability to avoid situations decreases predictable events from reoccurring but does not reduce the negative emotions produced from that event. Feedback is defined as the response to a stressful event, such as the development of depression or sleep disturbances (Lazarus & Folkman, 1984). When individuals experience difficult, stressful situations, there is an increase in pituitary-adrenal cortical activity. Nevertheless, situations that are perceived as an ambiguous exhibit the same effect (Lazarus & Folkman, 1984). Consequently, individuals who experience discrimination in predictable or unpredictable events are still at risk of increasing cortisol levels that could lead to negative mental health consequences.

Conceptualization of the significance of coping and appraisal is essential because of how it affects adaptation from the consequences to stress (Lazarus & Folkman, 1984). Adaptation outcomes due to stress can affect functioning, socialization, life satisfaction, and somatic health (Lazarus & Folkman, 1984). All stress should not be considered maladaptive; some stress can produce growth and development through resilience. Nonetheless, stress can trigger people to be

vulnerable and struggle to learn coping skills to adapt and initiate somatic consequences (Lazarus & Folkman, 1984). Adaptive functions can develop when individuals feel threatened, such as anger towards their physical and social environment. According to Lazarus and Folkman (1984), anger can be used as an impulse to attack one's environment in order to get a response to yield.

Another example is fear that is used as a function to escape from a threat and to avoid being harmed. Through adaptation, an individual's emotions and impulses may exceed the level needed, resulting in illnesses (Lazarus & Folkman, 1984). Coping effectiveness is integrated into two coping functions, emotion-focused coping (control of emotion) and problem-focused coping (management of the problem), from a stressful event (Lazarus & Folkman, 1984). It is essential to be successful with both coping functions to adapt to the stressful occurrence. For instance, an individual who experiences stress from racial slurs at work who goes to human resources and reports racist behavior is a criterion for sound decision-making. However, the individual who reported the behavior is still suffering from stress, anger, and depression as repercussions from the verbal assaultive behavior. The individual may lack the effectiveness of coping and disregards managing their negative feelings. Positive feelings will not occur after problem-solving an event. Instead, negative feelings require stress management interventions after the stressful incident (Lazarus & Folkman, 1984). The same concept should be applied to an individual who can apply emotion-focused coping and cannot problem-solve.

The biological traditional approach provides details of the pathway of stress and its effects on the biological system. Cohen et al. (2016) proposed that stressful environmental events that are perceived as a threat will trigger an emotional response. Cohen et. al (2016) also indicated that stress could elicit biological effects, such as changes in the automatic and neuroendocrine reactions that are the pathway for acute disease progression. For instance, an emotional response such as irritability is the pathway to coping behaviors, such as smoking, leading to ailments from the consequence of stress. Stressful events can be individualized or global, increasing one's adverse physical and mental outcomes (Cohen et.al, 2016). Researchers have asserted that a consequence of stress is the depletion of the cortisol-dependent modulator of inflammatory response that can exacerbate severe cold symptoms Cohen et. al (2016). Smyth et al. (2016) investigated triggering anger or upset emotion from the stress that caused acute myocardial inflammation in a sample of 1,650. Smyth et al.'s results demonstrated that in a 99% confidence interval of 2.06 to 2.89 in men and women of all age groups in all geographical locations, anger, and upset emotions were positive associations for acute myocardial inflammation. Smyth's study provides evidence of how stress is a pathway to promoting aliments and increases negative symptomology.

The biopsychosocial model was initially implemented in the seminal works of Clark et al. (1999). Clark et al. addressed how exposure to racism is considered significantly stressful based on one's appraisal and racial health disparities. Moreover, Clark et al. identified that individual variations in coping might explain

the variations of African Americans' adverse health concerns. Furthermore, they determined that few studies used the biopsychosocial model to identify the effects of perceived racism. There are differences between environments of racist exposure, such as residential, skin tone, and occupation status. The Lazarus theory was essential to explore the correlation between stress and racial discrimination. They concluded that racism impacted the psychological, physiological stress response (Clark et al., 1999).

Overall, environmental stressors have been demonstrated through research to link adverse physical and mental health consequences. The influence of stress is often confused because of one's interpretation of stress, but in simplicity, it is based on the judgment of the individual on how they perceive that threat. It is also significant to take notice of how the individual copes with that associated threat. Thus, if negatively impacted by stress, it can trigger the progression of the disease and mental adversities. Cohen et. al (2016) model provides a comprehensive review of the variations in stress pathways due to the premises of perception.

Historical Review of Perceived Racial Discrimination

African Americans are subjected to racism on numerous platforms (i.e., individual, institutional, cultural, and collective racism) and are often exposed to various environmental stressors. Essed (1994) described that discrimination could occur in (a) individual racism, racism experienced on an individual level, (b) institutional racism, racism experienced from policies developed for an institution, (c) cultural racism, a superior view of one's cultural beliefs the other cultural

practices, and (d) collective racism, from an establishment or organization prohibiting African Americans' rights. Essed (1994). identified that chronic stress is associated with racism due to the challenges faced daily from racial discrimination of avoiding or defending and planning where it becomes a chore of how to deal with racism (p. 260). Over time, the stressor of past experiences, incorporated with new confrontations of racism, and historical knowledge of global discrimination, can negatively impact one's health. The overview of Essed (1994) the multidimensional experiences and expressions that African Americans undergo in the United States. One of the utmost challenges researchers have encountered is identifying a measure that successfully measures the different forms of racial discrimination because experiences can be subtle or elusive.

Phelan et al., (2010) provided evidence that systematic racism, a "fundamental cause," positions European Americans in a superior position because of a consistent ideology of White superiority, a power of commercial and government institutions. Structural and material discrimination levels have been expressed blatantly due to White ideologies, and their appraisals of self-worth by implicit stereotypes towards African Americans help strengthen their White advantage (Phelan et al., 2010). Racial health disparities occur over African Americans' life cycle, and they face a higher chance of developing chronic disease compared to European Americans. Some previous research has addressed socioeconomic status as a factor of correlation of closing the gap of ethnoracial disparities (Williams et al., 2008 Zilioli et al., 2017). On the other hand, some

studies have adjusted for socioeconomic status, and African Americans have continued to suffer from adverse health outcomes (Das, 2012; Williams & Sternthal, 2010). The literature provides information about residential segregation, which can obstruct obtainment and access to employment and education opportunities that fundamentally impact socioeconomic status and health from producing detrimental health conditions (Williams & Mohammed 2013).

Researchers have begun to investigate supplemental evidence to identify other social inequalities where they considered racial discrimination. Discrimination is identified as having a consistent critical stigma that includes stereotyping, labeling, social exclusion, and status loss, contributing to the "fundamental cause" of health outcomes (Phelan et al., 2010). According to Williams and Mohammed (2012), the most disputable factor is racism impacts health due to institutional racism. Some studies have concentrated on institutional discrimination (i.e., residential segregation) and its consequences to wellness (Acevedo-Garcia et al., 2003; Williams, 2001).

Residential segregation is demonstrated on many platforms, such as lack of ability to access goods or healthcare access. Underprivileged inner-cities, foods that are less in quality are more cost-efficient, and nutritional foods are higher in expense. Often, nutritious food is lower in availability in economically disadvantaged neighborhoods. In effect, individuals that reside in disadvantaged neighborhoods exhibit poor nutrition. In poor urban areas, the advertisement of maladaptive behaviors such as smoking and alcohol use is prominent, as is limited

access to physical activity facilities (Williams & Mohammad, 2013). African Americans participate in less physical activities and engage more in tobacco and alcohol use due to accessibility. Moreover, African Americans are more likely to suffer from acute or chronic stress due to economic, individual, and institutional hardships (Williams & Mohammad, 2013). Furthermore, it is essential not to negate the stressors of crime, environmental toxins, and the poor quality of housing that can all contribute to physical and mental health outcomes.

A substantial proportion of African Americans were housed in poor urban areas, and Native Americans were limited to reservations. The extent of geographical isolation among African Americans, Native Americans, and Latinos are becoming an escalation of warning for adverse health outcome (Acevedo- Garcia et al., 2003). It is significant to identify that everyday poor people in the U.S. are European Americans, but it is critical to recognize they are not concentrated in neighborhoods like poor African Americans and Latinos. The essential determinant to note is racial segregation in racial commonalities is a disadvantage economically and socially, which diminishes one opportunity to be successful or have the right.

Another contributing factor is cultural racism, which has influenced racial stereotypes of African Americans as inferior. Cultural racism can impact one's ability to access proper medical care because of the stigmas connected to being African American who is institutionalized in a residential community. They have limited access to excellent quality physicians, who provide them with subpar medical treatment, and pharmacies have a low quantity of medications (Williams &

Mohammed, 2013). Negative stereotypes include dehumanizing black males to make them feel inferior, producing low college participation rates and graduation (Smith et al., 2016). African American males are stereotyped as street smart, thug, athletic, criminal, and predator (Smith et al., 2016). These stereotypes often lead to black males feeling oppressed and controlled due to micro/macroaggression due to the predominant European race. Moreover, it is essential to note that discrimination occurs on all platforms and is a stressor that can negatively impact an individual's psychophysical health.

In conclusion, the experiences of individual, institutional, collective and cultural racism are a stereotypical threat that exacerbates stress to make Europeans feel superior, at a cost to African Americans' physical and mental health. African Americans and other minorities subjected to racial discrimination must maintain constant alertness in everyday routines to be aware of their physical and socio-psychological environment.

Racial Discrimination and Physical Health Disparities

The highest priority in the United States is to eradicate health disparities (Dankwa-Mullan et al., 2010). Traditionally in the United States, racial health differences have been reported for the past 100 years (Williams, 2012, p. 279). African Americans are often subjected to higher mortality rates, acute disease progression, and advanced levels of comorbidity than European Americans (Williams and Mohammed, 2013 p1153). Among African Americans, life expectancy has demonstrated remarkable improvements, yet there are still health

disparities among the races that have been consistent. According to the Center for Disease Control (2017), African Americans aged 18-64 are at higher risk for early death than whites, including chronic diseases such as heart disease and diabetes. As of 2017, African Americans have a greater probability of dying with heart disease and cancer and have high blood pressure compared to European Americans (CDC, 2017).

The analysis of ethnoracial disparities in health has increased attention from several disciplines, including psychology, to understand the significant inequalities of African Americans in the United States. The role of racial discrimination and its connection to psychobiological factors from stress continues to require a better understanding. There is compelling evidence that has connected psychosocial factors to cardiovascular disease (Khayyam- Nekoei et al., 2013), including chronic stressors resulting from perceived racial discrimination in one's environment. It is critical to comprehend the biological risk factors associated with perceived racial discrimination in the African American community, leading to higher mortality rates.

Chronic stress is a psychosocial risk factor linked to the cause of cardiovascular disease (Clark et al., 1999). According to Clark et al. (1999), African Americans are exposed to a disproportionate level of environmental stimuli connected to acute and chronic stress. Perceived racial discrimination is experienced in various ways by minorities. Several systematic reviews suggest that perceived discrimination has adverse health effects on African Americans (Monk, 2015, Lee et

al., 2016; Dolezsar et al., 2014). Discrimination is an experience that affects an individual temporarily and increases the risk for long-term chronic problems that are both psychological and physical. There are numerous ways African Americans experience and perceive discrimination, such as inadequate housing, low wages, and exclusion from skilled labor (Clark et al., 1999). The impact of racial stress that African American adults suffer over the long term often leads to higher rates of anger and depression, influencing high blood pressure.

Even though there are compelling arguments of discrimination being a contributing factor to health disparities, researchers have a strong warning concerning attention to considerable knowledge to understand the relationship between discrimination and health among African Americans (Monk, 2015). Research investigations identified greater experiences of perceived racial discrimination with increased weight gain among African Americans (Stepanikova, 2017). Some studies have found a positive correlation to the expectation of racial discrimination related to negative health outcomes among African Americans (Sawyer et al., 2012).

Obesity

Several studies focused on the variations of racial discrimination based on skin color as a substantial predictor in health outcomes among African Americans (Monk, 2015; Keith et al., 2017; Borrell et al., 2006, Keith et al., 2017). The research comprised 35,750 interviews from secondary data from the National Survey of American Life: Coping with Stress. According to Keith and associates, their results

concluded that the average BMI was 28.93 over the 25.00 normal weight indicative. The results demonstrated that racial discrimination levels were low but still significant to cause a negative impact on their mental and physical health. In this study, males were considered to have a stronger association of higher BMI with racial microaggression but not among women (Keith et al., 2017). The identified limitation to Keith and colleagues' study was the instrument did not adequately capture the full experiences of unfair treatment experience among African Americans (Keith et al., 2017). Borrell et al. (2006) and Monk (2015) found that racial discrimination is correlated to the greater adverse physical health outcomes and the association to skin color gradation. Monk (2015) study proved that perceived racial discrimination had 47% higher poorer mental health outcomes rates than European Americans. The studies presented evidence of a positive association between racial discrimination in women, precisely their skin color and weight.

In three separate studies that included studies focusing on African American women or men, Cozier et al. (2014), Thorpe et al. (2017), and Bowers et al. (2015) found a positive association between racism and obesity. Bower et al. (2015) and Cozier et al. (2014) conducted an experiment that concentrated on obesity among women and racial residential segregation. Cozier and colleagues demonstrated that African Americans are confirmed to have a stronger association with prolonged experiences of racism. Bowers and associates' results showed that African American women were two times as likely as European women to be obese (Bower et al., 2015). It also identified a positive association with the black isolation index and

obesity (95% CI=1.01,1.11) for individuals ranging from 40-49 years of age (Bower et al., 2015). Thrope et al. (2017) conducted a Poisson regression from the National Survey of American Life data among 1,209 African American males implementing the measurement of everyday discrimination. Results were astounding African American males, 91.9%, reported experiences of discrimination and had a greater probability be obesity 95% Cl. It was also indicated that males who experienced discrimination were 35% more likely to be obese. The studies above show no gender bias in racial discrimination, and African Americans are impacted with significant physical health consequences.

A different view Lee et al. (2016) and Parker and Hunte (2013) demonstrated that internalized discrimination due to racial discrimination was associated with obesity among African Americans. Lee et al. (2016) researched 124 African American males and female students, focusing on internalized racism in association with BMI and WHR. Lee and his colleague's findings demonstrated that internalized racism had a positive association with high BMI, yet there was no association with WHR. Parker and Hunter (2013) individuals have exhibited an increase and body fat composition and correlation to endorsements of negative racial/ ethnic stereotypes. The existing studies provide evidence that internalized racism impacts African Americans' physical health by weight gain and increases the risk for cardiovascular disease.

The studies on racial discrimination and physical health continue to develop quickly. Nevertheless, the measurement of obesity has been operationalized in

identical ways, which continues to provide outcomes of an inverse association between discrimination health outcomes among African Americans. A valid and reliable measurement of obesity influences the plausibility of racial discrimination, which is significant to identify adverse health outcomes. In the following sections, the literature was summarized related to perceived discrimination and anger.

Racial Discrimination and Mental Health Disparities

Anger

Racism often develops negative emotions due to discrimination from various environments that cause mental health consequences (Gibbons et al., 2014). Often individuals experience anger or hostility as a consequence due to the threat or action of unfair treatment. Anger is a response to a threat for a means of survival from a stressful experience (Novaco & Fink, 2016). Darwin's contemporary literature explained anger as an adaptive response to pain or danger (Novaco & Fink, 2016). Anger is a form of communication for conflict resolution (a) to defend oneself, (b) obtain personal control, and (c) instigate aggression for survival (Novaco & Fink, 2016). Anger is an emotion that is a part of cultural life, and it does not necessarily indicate an individual will demonstrate aggressive behavior; an inhibitory control mechanism regulates anger. On the other hand, Novaco and Fink (2016) found that individuals who cannot regulate their anger cause psychophysical health consequences that can be a precursor to mortality.

Scholars examined the influence of racial discrimination, allostatic load, and anger (Zilioli, Imami, Ong, Lumley, & Gruenewal, 2017; Tomfohr, Pung &

Dimsdale, 2016). Allostatic load is defined as a physical health indicator of risks for the hypothalamus, sympathetic nervous system, parasympathetic nervous system, and glucose metabolism inflammation (Zilioli et al., 2017). Zilioli et al. (2017) presented a connection between SES disadvantages, discrimination, and anger that is the pathway to the development of allostatic load. Their research results exhibited that individuals with a low socioeconomic status demonstrated higher allostatic load due to anger. According to Tomfohr et al. (2016), African Americans suffered from a higher allostatic load than European Americans due to chronic exposure to unfair treatment. Individuals that presented with increased anger suffered from poor sleep quality and higher levels of internalized anger. The above studies confirmed that experienced racial discrimination provides the pathway to adverse health outcomes and deterioration effects to one's emotional regulation.

These correlational studies focused on the relationship between racial discrimination and anger among other ethnic cultures such as Polynesian Americans (Allen et al., 2017) and Asian Indians (Nadimpalli et al., 2016). Allen et al., (2017) emphasized their research on Polynesian American college students that have experiences discrimination and exhibited the trait of anger. Their study not only linked racial discrimination to anger but also to anxiety and stress. This resulted in an inverse association with satisfaction with life and high self-esteem. Nadimpalli and associates focused on Asian Indians who resided in Chicago and San Francisco and connected discrimination to depression, anxiety, and anger. Their research determined that even with higher levels of education, experiences of low levels of

discrimination were still a pathway to mental distress. All and all, these studies identified that other ethnic groups who experienced discrimination had developed the same negative symptomology. The level of severity is obsolete due to minimal experiences of discrimination is a correlation to psychological distress.

Furthermore, other researchers examined the relationship between discrimination and anger that have identified a positive association (Gibbons & Stock, 2017; Williams et al., 2012; Harper, 2015). Gibbons and Stock (2017) utilized African American women caregivers from Iowa and Georgia, concentrating on lower to middle-class families. Their results recognized that the greater discrimination experience correlated to hostility among African American women. Gibbons and Stock (2017) research identified that a form of coping was the expression of hostility, but it was connected to substance use if externalized. Their research also noted that cumulative experiences of discrimination were the pathway of increased hostility in which individuals were coping with alcohol use. Williams et al. (2012) collected their data from the YES Health Study, identified that higher levels of anger and frustration correlated with racial discrimination. Lastly, Harper (2015) focused on predominately white colleges that African American male students experience anger and anxiety produced from racist stereotypes. The evidence demonstrated that racial discrimination triggers negative symptoms such as hostility, anger, and frustration, which has been problematic for engaging in maladaptive behaviors. The studies presented provide different forms of coping with racism through internalizing and externalizing that impact one's psychophysiological system.

The literature provided has limitations of experienced racial discrimination and anger among African Americans in the United States and the application of Novaco's Dimensions of Anger Reactions measurement. The current literature presents a relationship between anger and anxiety regardless of the severity of racial discrimination endured. Nevertheless, there are limitations in the studies due to focusing on predominately male, females, or students. There is a lack of literature focusing on racial discrimination and anger among African American adults. There is also a lack of research focusing on the different levels of anger: frequency, intensity, duration, and antagonism with the implementation of the DAR scale. This exploratory study will expand on the current literature provided.

Stress

Racial discrimination continues to be a problem for African Americans where they are under a president who endorses “Muslim bans, Mexican rapists, Haitian go back to their huts” that has ignited fear in the minority community (Lartey, 2012). Racial remarks are becoming more normalized and accepted, and it is causing minority groups increased psychological distress. The stress and disease model clearly states that stress is the pathway to mortality. African Americans are subjected to environmental stressors that can increase their risk for psychophysiological consequences.

Halls and Fields (2015) focused on the perceived racism and the connection to health stress, leading to health disparities among African American adults. Halls and Fields (2015) research collected narratives of individuals' experiences of racism

and how various experiences of racial slurs and macroaggression correlated to a plethora of physical health adversities. It identified that microaggressions are associated with triggering previous traumatic racial incidents (Halls & Fields, 2015). The results have also identified that the subtle experiences of racism still have the same effect of causing physical and mental consequences. There was some limitation in the study due to its primary focus was microaggression in a healthcare context. This study provides evidence that African Americans who experience racism in the workplace exacerbate increased stress.

Further studies concentrated on a worldview perspective of discrimination and the determinants of stress influence health disparities (Lucas et al., 2016, Hunte & Williams, 2009). Lucas et al. (2016) researched the experiences of unfair treatment of justice beliefs among 118 African American adults. They measured levels of cortisol and c-reactive protein to identify the biological response to stress. Results indicated that African Americans who suffered from acute social stress from unfair beliefs of justice demonstrated high levels of cortisol and c-reactive protein and were inversely associated when beliefs of justice are fair. Hunte and Williams, (2009) investigated racial discrimination from an individualistic and collective perspective among African American and British Caribbean Americans. Hunte and Williams (2009) utilized the IRRS-B to identify the levels of discrimination the population was exposed to in Miami, Los Angeles, New York City, Baltimore, and Washington, D.C. Her findings reported that African Americans had a greater likelihood of experiencing racial discrimination than British Caribbean Americans

(Hunte & Williams, 2009). Her research also revealed that individualism and collectivism racism were significant factors of how individuals perceived racial discrimination from the identified ethnic groups. The studies' results provide substantiation of the impact of racial discrimination on the psychophysiological on multiple platforms from various geographic locations.

Alternative studies conducted correlational studies between stress and racial discrimination among other minorities such as Black Caribbean's (Case & Hunter, 2014) Asian Americans (Wong-Padoongpatt et al., 2017). Case and Hunter (2014) was another case that focused on cultural racism and related stress among Black Americans and Caribbean immigrants. Case and Hunter (2014), the sample consisted of 171 Black adults who were residents of the United States. Results indicated a significant relationship between Black Caribbean's, Black American, and cultural racism pertaining to their residences. Wong-Padoongpatt et al. (2017) investigated the relationship between racial discrimination among foreigners and its impact on self-esteem. Their study consists of 56 Asian American females and results demonstrated that self-esteem is a mediator of race-related and physiological stress. The study implemented a white experimenter facilitating microaggressive slurs towards the Asian American participants, making them feel inferior based on social status (Wong-Padoongpatt et al., 2017). Additionally, it was examined that racial microaggressions are connected to stress among Asian Americans. Based on the research, minority groups have demonstrated similar trends of racial discrimination similar to African Americans and have produced adverse mental health outcomes.

A different investigation examined different categories of racism and how it is associated with race-based traumatic stress symptoms (Carter et al., 2016). Carter et al. (2016) concentrated on three categories of racism: avoidant, hostile, and aversive-hostile racism between stress reactions. They conducted a multivariate multiple regression study among African Americans, European Americans, Hispanics, Asian Americans, and Biracial. Carter and colleagues' analysis produced results of the relationship of stress from hostile racism was positively associated with Anger ($p<.05$), Avoidance ($p<.05$), and Intrusion ($p<.05$). The findings' limitations were that their results' generalizability could not be applied to all African Americans. The evidence depicts African Americans are more susceptible to race-based traumatic stress symptoms such as anger due to racism.

Themes in the Literature

The literature provided several themes concerning racial discrimination, obesity, anger, and stress. The literature themes pertaining to racial discrimination and obesity focused on internalizing racism, implementing BMI, and skin color gradation. The themes that appeared from the literature regarding racial discrimination and anger were pathways linked to racial discrimination to anger to allostatic load, expression of forms of coping such as substance use and hostility, and SES involvement of exhibition of anger. Lastly, the themes of stress and racial discrimination were the impact of the biological response of cortisol, race-based traumatic symptoms, and the impact of self-esteem due to cultural racism.

Highlighting the research gap involving perceived discrimination and the adverse effects of health is quite minimal. There has been minimal systematic investigation involving the correlation between perceived racial discrimination, BMI, anger, and stress. Past studies provided limited information on the correlation between perceived racial discrimination and BMI, anger, and stress among African Americans. The stressors of racial discrimination are essential to research due to the continuous experiences of perceived discrimination in the workplace, interactions with police, and social media. This study will develop the current literature by providing information about race-related stress and its impact on physical and mental health outcomes. There has been an increasing outcry from African Americans and other ethnic groups about ongoing blatant and subtle racial discrimination.

Summary

In summary, the empirical evidence reviewed presented provided here highlighted the adverse outcomes related to perceived racial discrimination, including stress, anger, and obesity. The stress and disease model and Lazarus theory provided the biopsychosocial model of the impact of acute and chronic stress. When the stress and disease model and Lazarus theory are applied to current research, racial discrimination is a significant determinate, or ongoing stressor is the pathway to stress among African Americans. This stress is hypothesized to be the pathway of an increase in abdominal fat, stress, and anger. This review of the literature provides rationale and context for studying perceived discrimination, anger, abdominal

obesity, and stress among African Americans. The biopsychosocial model shows how elements of each of these theories will be used to test relationships between perceived discrimination and abdominal fat, stress, and anger among African Americans. Chapter 3 will describe the research design, methods, and analytical approach for obtaining data.

Chapter 3: Research Method

Introduction

This chapter addresses the design, sample, instrumentation, data analysis, and ethical considerations employed to conduct this research. I present the description of the research design and how the study was approached (see Creswell & Creswell, 2018). The sample size and characteristics are also presented (see Gravetter & Wallnau, 2007). The instruments that were implemented in this study are presented and identified in detail (i.e., DAR, PSS, IRRS, and BMI). The process of data collection and analysis are also discussed.

Purpose of Study

The study was guided by Cohen's (2016) biopsychosocial model and Lazarus and Folkman's (1984) stress and coping appraisal to explore the relationship between perceived discrimination, obesity, stress, and anger among African Americans. African Americans who have experienced acute or chronic racial discrimination have been linked to suffering from several physical and behavioral disorders. Researchers have identified that single and reoccurring events have demonstrated negative psychophysiological responses. Current literature has revealed that racial discrimination has been recognized as the pathway to deterioration of emotional regulation and adverse health outcomes (Zilioli et al., 2017). African Americans who have greater experiences of perceived racial discrimination may have more stress, anger, and obesity outcomes. Additionally, research has also varied on differences in anger and stress levels associated with racial discrimination, suggesting the need to

continue investigating the correlation. This study examined the potential association between perceived discrimination, anger, stress, and obesity.

Research Design and Approach to the Study

I employed a quantitative research methodology. Quantitative research allowed me to explore whether there is a relationship between race-related stress, perceived stress, anger, and obesity, which was the focus of this dissertation. This study was conducted using a quantitative methodology comprised of correlational measurement investigating the relationship between race-related stress, general perceived stress, anger, and BMI among African Americans. A Pearson's *R* correlation was implemented to determine the relationship between measures of race-related stress, perceived stress, anger, and BMI. Multiple regression analyses were conducted to assess the impact of race-related stress, perceived stress, and the dimension of anger reactions on BMI. The implementation of this research design was deemed most appropriate for answering the research questions and expanding the current literature.

The design included a survey method to examine participants' experiences of perceived discrimination (race-related stress), perceived stress, anger, and BMI (see Creswell & Creswell, 2018). Creswell and Creswell (2018) indicated that the survey design allows a researcher to draw an inference from attitudes or opinions collected from a sample population. Implementation of the survey instruments is included, presented in a later section of this chapter. A standard multiple regression tested the

three predictors' race-related stress, perceived stress, and anger (i.e., independent variables) impact on the dependent measure of BMI.

This approach reflected the stress-disease model's theoretical perspective, as proposed by Cohen (2014), and stress and appraisal theory developed by Lazarus and Folkman (1984). The stated hypotheses were tested to measure correlations and identify significant relationships among race-related stress, perceived stress, anger, and BMI.

Setting and Sample

Participants

Institutional review board approval was obtained from the Walden Institutional Review Board before the study was implemented, and data were collected. The type of sampling implemented in this study was purposive. Purposive sampling was chosen due to the specific characteristics unique to the study that were consistent with the research questions. Purposive sampling is a method where participants are chosen based on the criteria that meet the study and are more specific to a population (Creswell & Creswell, 2018). The participants of this study were African American adults 18 to 65 years of age who resided in the United States. Participants were recruited for the following characteristics: (a) they identified as African American, (b) they were within the age parameters to provide informed consent, and (c) they were an accessible population. Survey Monkey, an online survey company, hosted the questionnaire.

Procedures

Participants were asked to complete all surveys and questionnaires through Survey Monkey, which has access to a diverse population of 30 million people. The inclusion criteria for participation in this study were between 18 and 65 years old, identifying as Black or African American, and residing in the United States. The exclusion criteria were any race other than African American or Black, residing outside of the United States, or younger than 18 or older than 65 years old. Survey Monkey is a user-friendly, web-based program that can distribute surveys to a significant sample with explicit delineations specific to the requirements of this experiment. Participants completed a detailed profile for individuals to be a part of the Survey Monkey audience on surveymonkey.com. Survey Monkey implements a purposeful sampling method to target a specific sample of participants for each survey requested by the researcher completed through Survey Monkey independently. For recruitment of participants, that meant that the inclusion criteria were not necessary. Nevertheless, the demographic survey was implemented to safeguard all respondents met the inclusion criteria. The participants in this study were pursued because of their responses in their profile created through Survey Monkey, including age, gender, and race.

Survey Monkey permits the inclusion of the informed consent and introduction of the study before administering surveys to the participants. The informed consent informed participants of background information about the study, explanation of confidentiality, the process for participation, and discussion of ethical

concerns. Additionally, my email address was provided for participants regarding participation for additional questions. Participants interested in participating in the study confirmed via Survey Monkey after reading the informed consent form. At any time, the participant had the option of withdrawing from the study as their right to withhold information if they felt they did not wish to participate. The web-based program was a secure site that protected the participants and my data due to safeguarding measures. The data collected were transferred directly from Survey Monkey into a secured encrypted database.

Individuals were emailed an invitation to the study through Survey Monkey, including an introduction to the study. One follow-up email was sent requesting the respondent to complete the survey for respondents with an incomplete survey. The email contained a link to the survey that presented the electronic informed consent. Prospective participants were provided information on how their information would remain confidential. Before data were collected, each participant signed an electronic informed consent informing them of the intent of the experiment, described procedures, the right to withdrawal from participation, and risks involved in participating. Respondents who reported they agreed to the conditions of the study were provided an instruction form to complete all surveys online. The demographic questionnaire included age, gender, and ethnicity. The demographics were completed initially to identify if the participant met the requirements of the study. Appendix B presents a copy of the demographic form implemented in this research. The online survey took a maximum of 20 minutes to complete.

Data Collection and Analysis

Data Collection

Data pertaining to this research were collected through Survey Monkey, an online resource. Information was delivered to participants from a webpage that informed them of the needs for the study. After all, individuals met the needed inclusion criteria and all informed consent procedures were met, the respondents were provided access to participate in the experiment and were provided information on their capability to withdraw from the study at any period. The survey was comprised of 48 questions. At the beginning of the survey, three questions were obtained about demographics (i.e., age, gender, race) to ensure appropriateness for this study. Self-reported BMI was obtained through two questions about the participant's height and weight. Each participant's experiences of racial discrimination were addressed through 22 questions on the IRRS Brief Version Scale. Self-reported internalized and externalized anger was addressed through seven questions through the DAR-Revised Scale. Lastly, the PSS was administered through 14 questions, measuring the participants' stressful events.

Power Analysis

An a priori power analysis was administered to establish the minimum sample size necessary to identify the significance with the desired power set at .80 and an α level at.05. Based on the analysis, a sample size of 107 participants was essential to guarantee an adequate power for multiple regression analysis (see Green, 1991). The sample size was increased by 20% because some respondents were found

not to meet the criteria and account for incomplete responses. Therefore, a sample size of 128 was used.

Analysis Plan

Descriptive statistics were analyzed for all variables; standard deviations; comprising means, maxima, and minima for continuous variables (i.e., subscale scores); percentages; and frequencies for all categorical variables (i.e., gender, age.). Bivariate associations were examined using the Pearson *R* correlation. The Spearman's correlation coefficient was used to identify if data violated the parametric assumptions (see Field, 2009). The data were analyzed using SPSS 22.0. A Cronbach's alpha (α) level of .05 was used to determine significance levels. The results were interpreted based on estimates of 95% confidence interval. The initial calculation was administered to assess simple and bivariate relationships among independent and dependent variables. Furthermore, an evaluation for potential covariates was incorporated in the initial calculation. The data were examined for data and outliers that were missing. Hierarchical multiple regression analysis was employed to examine if the main and interactive effects of race-related stress, perceived stress, and anger are associated with BMI.

Research Question (RQ)1 Quantitative: Does greater race-related stress measured by the IRRS (racism experiences by specific daily events and discrimination, such as institutional, individual, cultural, and global) influence BMI?

Null Hypothesis (H_0)1: There is no significant relationship between race-related stress and BMI.

Alternative Hypothesis (H_a)1: There is a significant relationship between race-related stress and BMI.

Research Question (RQ)2 Quantitative: Does greater race-related stress measured by the IRRS (racism experiences by specific daily events and discrimination, such as institutional, individual, cultural, and global) influence anger measured by the DAR (individual experiences of perceived anger due to health, social relationships, and work performance)?

Null Hypothesis (H_0) 2: There is no significant relationship between race-related stress and anger.

Alternative Hypothesis (H_a)2: There is a significant relationship between race-related stress and anger.

Research Question (RQ)3 Quantitative: Does greater race-related stress measured by the IRRS (racism experiences by specific daily events and discrimination, such as institutional, individual, cultural, and global) influence perceived stress measured by the PSS (stress that is influenced by daily stressors, alteration in coping resources, and major events)?

Null Hypothesis (H_0) 3: There is no significant relationship between race-related stress and perceived stress.

Alternative Hypothesis (H_a)3: There is a significant relationship between race-related stress and perceived stress.

Research Question (RQ)4 Quantitative: Do age, gender, anger, perceived stress, and race-related stress all affect BMI?

Null Hypothesis (H_0) 4: There is no significant relationship between age, gender, anger, perceived stress, race-related stress, and BMI.

Alternative Hypothesis (H_a)4: There is a significant relationship between age, gender, anger, perceived stress, race-related stress, and BMI.

Instrumentation

BMI

A BMI of 25 to 29.9 is defined as overweight, and a BMI over 30 is defined as obese.

Validity and Reliability for BMI

BMI is valid to be used among African Americans to reflect individual differences in adiposity of the body (Heymsfield et al., 2015). They also indicated among cultures that height and weight scaling is not necessary to accurately measure adiposity (Heymsfield et al., 2015). Pursey et al. (2014) conducted a study on the accurateness of using web-based self-reported weight, height, and BMI among 507 adults. Pursey et al. determined that online self-report is a valid method of collecting BMI ($p < .001$). In another study, Harvey-Berino et al. (2011) experimented with the validity of self-reported weight using the internet for obesity treatment among 323 adults. Both studies indicated that weight was underestimated, and height was overestimated, causing inaccuracy in the corresponding BMI. However, Harvey-Berino et al. revealed the results of weight $p < .001$ was considered significant and accurate over six months and concluded that web-based self-report is a valid tool for measuring weight.

Dimensions Anger Reactivity (DAR-7 Revised Version)

The DAR (Novaco, 1975) is a 7-item self-report questionnaire that evaluates anger frequency, intensity, duration, and antagonism (Novaco, 1975). The self-reported questionnaire is used to assess individual experiences of perceived anger due to the influence of vocational, social, and physical functioning. The original instrument used a Likert rating scale of 0 to 8, and the revised version uses a rating scale of 0 (not at all) - 4 (very much); superior scores signify greater anger dispositions.

Validity and Reliability of DAR

Forbes et al. (2004) examined the implementation of the dimensions of the anger reactions scale and identified it to be correlated to the State-Trait Anger Expression Inventory (Spielberger et al., 1988). Forbes et al. (2004) also discovered the DAR to be indifferent and could change over time, reliable, and unidimensional. According to Forbes et al. (2004) and Gonzalez (2011), both studies demonstrated a strong test-retest reliability. Forbes et al. (2004) exhibited internal consistency was significant Cronbach α=.92. Concurrent validity ranged from .77 to .64 of DAR's coefficients anger and irritability items PHQ-Anx, Behavior, and Symptom Identification Scale (BASIS) and PTSD Checklist-Civilian Version. DAR revised the discriminant validity of DAR with PHQ-ANX (.52) and PHQ-9 (.57) (Novaco et al., 2012). DAR's construct validity about the functional problems: interpersonal relations, global functioning, and substance use have demonstrated criteria for all

functional domains in comparison to psychological distress and anger/irritability (Novaco et al., 2012).

Perceived Stress Scale

The PSS was administered through the survey. The PSS is a 14-item measurement scale that uses a Likert scale response; 0=Never, 1=Almost Never, 2=Sometimes, 3=Fairly Often, and 4=Very Often. Responses are provided about the last 30 days and have demonstrated validity in a strong association of measuring self-reported health and stress measures (Cohen, 1994). This instrument considers the appraisal of stress that is influenced by daily stressors, alteration in coping resources, major events (Cohen, 1994).

Reliability and Validity of PSS

PSS is an instrument that measures stressful events by using a self-report rating. The scale has been identified as simple and demonstrates the predictability of increased risk for disease (Cohen et al., 1983). The PSS also measures events within the last six months and decreases the chances of subjective biases. This scale can appraise stress, often resulting in behavioral and physiological disorders (Cohen et al., 1983). There is a weakness of the PSS, which would include the insensitivity to chronic stress due to family or friends' experiences (Cohen et al., 1983). The PSS is a 14-item score designed for junior high school education. The PSS Scale has exhibited satisfactory test-retest and internal reliability and has been a significant factor in health and health-related consequences. The PSS scale will be implemented

in this study to assess stress and comparison to psychological and physiological problems.

Index of Race-Related Stress Scale Brief Version (IRRS-BV)

The IRRS –BV (Utsey & Ponterotto, 1996) is a measurement tool that is a 22-item instrument from the original 46 item scale. It will be used to collect data about levels of stress resulting from the experiences of racism and discrimination among African Americans. The measurement considers the appraisal of racist events and the frequency of exposure. The tool utilizes a Likert rating scale that ranges from 0 to 4. The scale has four subscales of racism identified as an individual, cultural, institutional, and global racism measurement that are scored independently (Atkins, 2014). The Index of Race-Related Stress (IRRS) is a comprehensive tool that can capture the experiences of racism among African Americans on multiple platforms. The IRRS is a self-report instrument developed from the theoretical framework of Lazarus and Folkman's integration of the daily hassles of stress (Lazarus & Folkman, 1984), and the multiple levels of everyday racism were from Essed (Utsey& Poneterotto, 1996).

Validity and Reliability IRRS-BV

According to Atkins (2014), the measurement utilized adequate coefficient alphas and represented reliable and valid factors for the IRRS-BV. The IRRS-BV convergent validity between Global Racism Measure subscale. The IRRS-BV criterion-related validity $p<.001$ and readability index demonstrated no formal readability index. The measurements were reliable in scale and subscales and met

acceptable criteria (Atkins, 2014). Additionally, the Race-Related Stress scale has been used in the United States to compare Black Americans and European Americans.

The test-retest subscale decreased due to utilizing a Black college, whereas the probability of new racial encounters did not occur. The IRRS-Brief is not correlated to the PSS scale, so therefore the PSS will be implemented as a separate measurement. The IRRS-Brief has been recognized as an acceptable criterion-related validity and reliable measure of racial discrimination among African Americans on multidimensional (Individual, Culture, Institutional and Global Racism subscales) (Utsey & Ponterotto, 1996). The IRRS-Brief demonstrated adequate internal consistency (Utsey, 1999).

Demographic Information

Participants were asked to answer questions including gender, age, and race. The race was categorized according to the 1997 United States Bureau stand as follows: Black or African American, Asian, Native Hawaiian, American Indian or Alaska Native, or Other Pacific Islander, and White, Hispanic or Latino and Not Hispanic or Latino. Respondents were able to select one or more races that apply to them. Participants entered their age. Gender was identified as male and female.

Threats to Validity

According to Stanley and Campbell (1963), correlational experiments must be aware of casual hypotheses which could cause a threat to internal validity. This experiment implemented a correlational research design with these limitations, so

significant findings may not imply causal relations of predictors. Participants were recruited from Survey Monkey, limiting the findings' generalizability. Moreover, each participant must have accessibility to the internet, further limiting the generalizability of the results.

Ethical Considerations

In order to gain access to participants, an electronic agreement form was presented informing participants of the intent of the study and gaining access to data provided. Walden's Institutional Review Board approval was provided prior to collecting any data. It was significant for each respondent to comprehend that the data obtained was confidential. The researcher maintained confidentiality through the acquisition of data from Survey Monkey through a secure encrypted website. Furthermore, the survey results were only available to the researcher. The introduction of the survey utilized an informed consent letter and the voluntary nature of the study, and the procedure was elaborated.

Ethical concerns about the participant's ability to early withdraw or refuse the study were presented during the informed consent. Participants were educated on the voluntary nature of the experiment and the process of withdrawing from the experiment. Participants were advised of the researcher's contact information during or after the study's psychological distress to provide referral information, and with the IRB approval number 02-11-29-0406546 in the consent form.

Data Analysis

Percentages mean and standard deviations were obtained for the PSS, DAR, IRRS-BV, and BMI demographic items. The Pearson R correlation was applied to assess the relationship between the PSS, DAR, IRRS-BV, and BMI to test the hypotheses. A hierarchical multiple regression analysis was employed to analyze main and interactive effects,

Summary

Quantitative analysis using the Pearson R correlation and multiple regression was implemented to examine the correlation between racial discrimination, anger, stress, and BMI. The results of this study are presented in Chapter 4.

Chapter 4: Results

Introduction

In this chapter, I present the research findings on the impact of race-related stress and how it impacts mental and physical health. The following research questions were evaluated in the study:

Research Question (RQ)1 Quantitative: Does greater race-related stress measured by the IRRS (racism experiences by specific daily events and discrimination, such as institutional, individual, cultural, and global) influence BMI?

Null Hypothesis (H_0)1: There is no significant relationship between race-related stress and BMI.

Alternative Hypothesis (H_a)1: There is a significant relationship between race-related stress and BMI.

Research Question (RQ)2 Quantitative: Does greater race-related stress measured by the IRRS (racism experiences by specific daily events and discrimination, such as institutional, individual, cultural, and global) influence anger measured by the DAR (individual experiences of perceived anger due to health, social relationships, and work performance)?

Null Hypothesis (H_0) 2: There is no significant relationship between race-related stress and anger.

Alternative Hypothesis (H_a)2: There is a significant relationship between race-related stress and anger.

Research Question (RQ)3 Quantitative: Does greater race-related stress measured by the IRRS (racism experiences by specific daily events and discrimination, such as institutional, individual, cultural, and global) influence perceived stress measured by the PSS (stress that is influenced by daily stressors, alteration in coping resources, and major events)?

Null Hypothesis (H_0) 3: There is no significant relationship between race-related stress and perceived stress.

Alternative Hypothesis (H_a)3: There is a significant relationship between race-related stress and perceived stress.

Research Question (RQ)4 Quantitative: Do age, gender, anger, perceived stress, and race-related stress all affect BMI?

Null Hypothesis (H_0) 4: There is no significant relationship between age, gender, anger, perceived stress, race-related stress, and BMI.

Alternative Hypothesis (H_a)4: There is a significant relationship between age, gender, anger, perceived stress, race-related stress, and BMI.

First, the research plan's modifications and rationale are described, followed by descriptive data collected through Survey Monkey variables, such as the number of participants, age groups, gender, and geographic location. A description and results of the statistical analysis to address the research questions follow, which include detailed information about the dependent variable and independent variables and covariates used to support each research question. The data were collected to answer the research questions mentioned above.

Data Collection

The data initially acquired through Survey Monkey was based on the responses of 131 participants. Sixteen participants were excluded because they identified as American Indian or Alaskan Native (*n* = 3), Asian American (*n* = 1), Hispanic or Latino (*n* = 2), White/Caucasian (*n* = 7), and bi-racial or multiracial (*n* = 3). The participants who remained (*n* = 115) identified as Black or African American. Some participants identified as Black or African American who did not fully complete surveys, and the data were removed from the dataset. Given the removal of these eight cases, data analysis was based on a final sample size of 108, with a response rate of 81.81%. It was also expected that this study could be replicated among other minority groups in the United States. Recruitment of participants was initiated in February 2019 and ended in November 2019. The last response recruited participants occurred in November, completing all surveys. The dataset consisted of 43 male respondents (39.4%) and 65 female respondents (59.6%). The respondents were between 24 and 62 years of age. Table 1 provides frequency data regarding the geographic location that demonstrated that the majority of participants in this study resided in southern states such as Virginia (31.2 %) and North Carolina (13.0%). There were no discrepancies with collecting data.

Table 1

Demographic Characteristics

Variables	*N*	%
Gender		
Male	43	39.4
Female	65	59.6
Age		
24-29	15	13.8
30-39	36	28.5
40-49	32	29.5
50-62	25	23.8
Geographic location		
Alabama	1	0.9
Arkansas	2	1.8
California	2	1.8
Connecticut	1	0.9
District of Columbia (DC)	1	0.9
Florida	6	5.5
Georgia	6	5.5
Hawaii	1	0.9
Illinois	3	2.8
Indiana	2	1.8
Kentucky	1	0.9
Louisiana	1	0.9
Maryland	6	5.5
Michigan	1	0.9
Missouri	2	1.8
New Jersey	2	1.8
New York	2	1.8
North Carolina	14	12.8
Oklahoma	1	0.9
Pennsylvania	5	4.6
South Carolina	5	4.6
Texas	8	7.3
Virginia	34	31.2
Washington	1	0.9

Note. $N = 107$. Participants were on average 40.9 years old ($SD = 9.4$).

Results

Based on the power analysis, a sample size of 107 participants was needed to guarantee an adequate power for multiple regression analysis (see Green, 1991). Thus, the current sample's power (N = 108) was above .80 for all study analyses and was identified as adequate power for multiple regression analysis.

Table 2 reports the mean and standard deviation of the instruments completed by the male and female participants: the DAR, PSS, IRRS–BV. Mean BMI for males and females fell into the obese category. Both were indicative of high stress for males (M=28.02, SD=2.80) and females (M = 27.60, SD = 3.02). The results indicated that participants identified the current environmental demands as stressful, and this also suggests that the individual perceived their situation or environment as uncontrollable and challenging. This can also imply a significant inability to manage their stress and coping ability. Anger was not considered elevated regarding gender as anger was below the 18 range for males and females. Higher levels of anger impact behavioral functioning and interfere with social relationships. Typically, individuals reporting higher levels of anger experience significant difficulties with anger dysregulation, including frequency, duration, intensity, and violent behaviors that have had problematic consequences in social functioning. Another example of higher related anger on the DAR is ruminative thoughts, elevated blood pressure, and automatic anger response. Cultural racism for females was M = 39.83, SD = 6.96, and for males was M = 38.05, SD = 7.13 as indicative be more elevated than individual, institutional, and global racism. It was

notable that in comparison to the other subscales of racism, global racism was considerably low.

Table 2

Means and Standard Deviation Scores

	Male (N = 43)		Female (N= 65)	
Variables	*M*	*SD*	*M*	*SD*
Age	43	1.52	40	1.10
DAR (Range: greater 18= high)	11.95	3.86	12.38	4.08
PSS: Range (0-13 low, 14-26 moderate, 27-40 high)	28.02	2.80	27.60	3.04
BMI	32.04	7.09	31.33	8.04
IRRS: Domains below				
Individual racism (total score 24)	17.95	6.21	19.63	6.02
Cultural racism (total score 40)	38.05	7.13	39.83	6.96
Institution racism (total score 24)	13.16	6.02	14.18	6.12
(Total IRRS) global racism	.42	2.63	.28	2.48

Note. Global racism is based on *z*-score transformation. DAR = Dimensions of Anger. Reactions; PSS = Perceived Stress Scale; BMI = Body Mass Index. IRRS: scores higher than total score are considered severe race-related stress.

The bivariate correlations were examined using the Pearson *R* correlation. The data were analyzed using SPSS 22.0. A Cronbach's alpha (α) level of .05 was used to determine significance levels. The results were interpreted based on estimates of 95% confidence interval. Bivariate correlations and significance levels are reported in Table 3.

Research Question (RQ)1 Quantitative: Does greater race-related stress measured by the IRRS (racism experiences by specific daily events and discrimination, such as institutional, individual, cultural, and global) influence BMI?

Null Hypothesis (H_0)1: There is no significant relationship between race-related stress and BMI.

Alternative Hypothesis (H_a)1: There is a significant relationship between race-related stress and BMI.

Bivariate correlations were used to address RQ1. There was not a significant relationship between BMI and global racism r = -.10, cultural racism r = -.12, individual racism r = -.17, and institutional racism r = -.00 (See Table 3).

There was not a correlation between BMI and race-related stress, r (107) = .07. Thus, the null hypothesis was not rejected, indicating that there is no significant relationship between race-related stress and BMI.

Research Question (RQ)2 Quantitative: Does greater race-related stress measured by the IRRS (racism experiences by specific daily events and discrimination, such as institutional, individual, cultural, and global) influence anger measured by the DAR (individual experiences of perceived anger due to health, social relationships, and work performance)?

Null Hypothesis (H_0) 2: There is no significant relationship between race-related stress and anger.

Alternative Hypothesis (H_a)2: There is a significant relationship between race-related stress and anger.

There was a positive correlation between anger correlated with global racism $r = .19$, individual racism $r = .17$, cultural racism $r = .25$, and institutional racism $r = .07$. An increase in cultural racism was moderately correlated with increased anger among African Americans aged 24 to 62 years, $r\ (108) = .25$, $p < 0.05$. Thus, the alternate hypothesis was accepted, indicating a significant relationship between cultural racism and anger.

Research Question (RQ)3 Quantitative: Does greater race-related stress measured by the IRRS (racism experiences by specific daily events and discrimination, such as institutional, individual, cultural, and global) influence perceived stress measured by the PSS (stress that is influenced by daily stressors, alteration in coping resources, and major events)?

Null Hypothesis (H_0) 3: There is no significant relationship between race-related stress and perceived stress.

Alternative Hypothesis (H_a)3: There is a significant relationship between race-related stress and perceived stress.

There was a negative correlation between perceived stress and race-related stress pertaining to cultural racism $r = -.19$, global racism $r = -.1\ 2$, institutional racism $r = -.06$, and individual $r = -.04$. A decrease in culture racism was moderately correlated with an increase in everyday stress among African Americans aged 24 to 62 years, $r\ (108) = -.19$, $p < 0.01$. Therefore, the alternate hypothesis was accepted, indicating a significant relationship between cultural racism and perceived stress. The preliminary analyses showed the relationship to be linear with both variables

normally distributed, as assessed by Shapiro-Wilk's test ($p > .05$), and there were no outliers.

Table 3

Pearson Correlation for Main Study Variables

Scale	Global	Total	Institutional	Cultural	DAR	BMI	PSS
Global racism-Total IRRS	-	.902**	.799**	.842**	.188	-.104	-.117
Institutional racism	-	-	-	.443**	.075	-.001	-.064
Cultural racism	-	-	-	-	.247*	-.119	-.193**
DAR	-	-	-	-	-	-.040	-.221*
BMI	-	-	-	-	-	-	-.120

Note. Global Racism is based on a z-score transformation. *$p < .05$. **$p < .01$.

Research Question (RQ)4 Quantitative: Do age, gender, anger, perceived stress, and race-related stress all affect BMI?

Null Hypothesis (H_0) 4: There is no significant relationship between age, gender, anger, perceived stress, race-related stress, and BMI.

Alternative Hypothesis (H_a)4: There is a significant relationship between age, gender, anger, perceived stress, race-related stress, and BMI.

The multiple regression was conducted, which examined whether age, gender, anger, perceived stress, and race-related stress all affect BMI. General stress and cultural, individual, and institutional racial stress were entered as independent variables for each analysis. The covariate variables were included in the analysis, which were age and gender.

Assumptions

There was linearity evaluated by partial regression plots and a plot of studentized residuals against the predicted values. As assessed by the Durbin-Watson statistic of 1.68, there was the independence of residuals. The *r*-value was indicative of .075, which indicates no linear correlation. A visual inspection was assessed by viewing the plot of studentized residuals versus unstandardized predicted values; there was homoscedasticity. The tolerance values were not greater than 0.1; thus, multicollinearity was evident. There were no studentized deleted residuals greater than ±3 standard deviations, no leverage values greater than 0.2, and values for Cook's distance were above 1. Assessed by a Q-Q Plot, the assumption of normality was met.

Results

A multiple linear regression analysis was conducted to evaluate the prediction of BMI from age, gender, race-related stress, stress, and anger. The multiple linear regression analysis results revealed that gender, stress, individual racism, institutional racism, and cultural racism were not statistically significant predictors to the model ($p > .05$). The R^2 for the overall model was 7.5% of the variance in BMI; this change can be explained by race-related stress, anger, perceived stress, age, and gender, found in Table 4. Age, gender, stress, anger, and race-related stress did not statistically significantly predict BMI, $F(7, 100) = 1.152$, $p = .337$. The variance is not a significant size effect, according to Cohen (1988).

Table 4

Regression of Association Between Dimensions of Anger Reactions (DAR), Perceived Stress Scale (PSS), Race-Related Stress, and Gender Predicting Body Mass Index (BMI)

Model	R	R^2	Adjusted R^2	SE	$R^2\Delta$	F Change	*df*	Sig. F Change
A	.273	.075	.010	7.94826	.075	1.152	7	.337

a. Predictors: (Constant), Culture Racism, Age, Gender, Total Perceived Stress, Dimension of Anger, Institutional Racism, Individual Racism

The regression coefficients and standard errors can be found in Table 5, which demonstrated an increase of anger predicted an increase in BMI led to an almost significant increase t(107)= 1.96, p >.05. This provides information related to an increase of anger is somewhat a contribution to greater BMI. In addition, the increase in age also predicted an increase in BMI that contributed to a statistical significance t(107)= 2.02, p <0.05. Therefore, the null hypothesis is not rejected; there is no significant relationship between age, gender, anger, perceived stress, race-related stress, and BMI.

Table 5

Multiple Regression Analysis Coefficients and Standard Errors Predicting Body Mass Index (BMI)

Model	*B*	Coefficients Std. Error	*SE B*	t	Sig.
(Constant)	16.856	12.138		1.389	.168
Age	.177	.088	.210	2.022	.046
Gender	-1.142	1.609	-.070	-.710	.479
Perceived Stress	.075	.280	.028	.269	.789
Dimension of Anger	.412	.211	.206	1.956	.053
Individual Racism	-.035	.201	-.027	-.172	.864
Institutional Racism	-.013	.159	-.010	-.082	.935
Culture Racism	.086	.163	.076	.527	.599

Note: Dependent Variable: Body Mass Index

Summary

I explored the impact of race-related stress on anger, perceived stress, and BMI among African American adults. A sample of 107 African American adults aged 24-62 years old within the United States. The participants completed surveys via Survey Monkey. The study identified a significant relationship between cultural racism, anger, and stress. It was also determined that race-related stress did not demonstrate a significant correlation with BMI. However, the multiple regression was able to identify correlations within coefficients age and anger with BMI. There was no relationship between BMI, anger, stress, race-related stress, age, and gender. Chapter 5 presents the discussion about the research findings, conclusion, and recommendations for future research.

Chapter 5: Discussion, Conclusion, and Recommendations

Introduction

The purpose of this quantitative study was to explore and investigate how racial discrimination contributes to adverse physical and mental health outcomes among African American adults. This study was performed to address a significant gap that identified that mixed results related to racial discrimination impact stress, anger, and obesity among African Americans. The literature also appeared to demonstrate mixed results related to African American males and females related to the negative outcomes of race-related stress, which provided unclear evidence of the potential outcomes for gender.

This study included 107 African American adults in the United States who participated in the study by completing surveys via Survey Monkey. Participants were recruited through Survey Monkey from February 2019 to November 2019. Data received were analyzed and interpreted through SPSS. The results demonstrated that cultural racism for females was more elevated than males though both were considered notable related to cultural racism. The data also indicated that there is a significant relationship between cultural racism and perceived stress. More specifically, a decrease in cultural racism was moderately correlated to increased everyday stress among African Americans aged 24 to 62 years old in the United States. An increase in cultural racism was correlated to an increase in anger. There was not a significant relationship between race-related stress and BMI.

Interpretation of the Findings

As expected, study results confirmed the hypothesis that there is a significant relationship between race-related stress and anger as well as race-related stress and perceived stress. Studies that identified the greater experience of perceived racial discrimination were associated with obesity among African Americans (Cozier et al., 2014; Stepanikova, 2017). As previously mentioned, a BMI of 25 to 29.9 is defined as overweight, and a BMI over 30 is defined as obese. This study identified that the average BMI for males was obese (M = 31.03, SD = 6.52), and females were also in the obesity range (M = 32.39, SD = 8.78). This study's findings were not consistent with Cozier (2014) and Stepanikova's (2017) research, as it did not demonstrate a correlation between race-related stress and BMI. African American females presented higher perceived racial discrimination than males on cultural racism. Previous studies did not differentiate a difference regarding gender and perceived racial discrimination.

It is noteworthy to mention that both genders experienced cultural racism, which was more significant than individual, institutional, or global racism. Global racism among both genders was low, which is comprised of all subscales. Reviewing the scores for cultural racism, females (M = 39.83, SD = 6.96) and males (M = 38.05, SD = 7.13) were more elevated than for individual, institutional, and global racism. It was notable that in comparison to the other subscales of racism that global racism was considerably low. Cultural racism is described as an individual's experiences of racial disparities due to policies developed that promote negative stereotypes and

discrimination that are pathogenic and cultivate adverse psychological responses to internalized racism (Williams & Mohammad, 2015). Racism experienced on an individual level and racism experiences from policies developed for an institution were not endorsed at a significant level in this study. However, it provides compelling evidence that racial discrimination presents a strong relationship between obesity and racism. These findings are parallel with similar results from racial discrimination and physical health (Cozier et al., 2014; Keith et al., 2017; Rosenthal et al., 2013). Other studies have focused on the association of perceived discrimination on negative emotional responses (Assari, 2017; Gibbons et al., 2014; Lewis et al., 2015).

Participants in this study reported higher than average levels of stress; this induces physiological responses that are commonly measured by indicators, such as cortisol, HPA-derived hormones, and sympathoadrenal medullary mediators, norepinephrine, and epinephrine, which cause high blood pressure and heart rate variability (Cohen et al., 2016). This puts African Americans at higher risk of negative health consequences that could impact positive mental and health outcomes. The stress disease model (Cohen et. al., 2016) provided an overview of how individuals who lack access to resources for coping are at higher at-risk for adverse mental and health outcomes. Similarity, Lucas (2016), Hunte and Williams, (2009) both identified a correlation between race-related stress and stress. Hunter focused on the areas of Miami, Los Angeles, New York City, Baltimore, and Washington, D.C., finding that individual and collective racism were significant

factors that impacted stress. I did not focus on a specific geographic area and was able to determine that cultural racism was positively associated with increased levels of stress.

The findings identified a weak positive association between anger and increased (e.g., race-related stress) cultural racism. There was a correlation between an increase in anger among African Americans aged 24 to 62 years, $r(107) = .25$, $p < .05$. Participants in the study identified, "I often find myself getting angry at people or situations," "When I do get angry, I get really mad," and "My anger has a bad effect on my health" as the top stressors. It is crucial to determine how many participants have emotional awareness of how their anger impacts their health. This study's findings provide the support that suggests that ethnic discrimination is associated with adverse health and physical outcome. The data collected were not like previous studies, as this was the first study using the DAR to evaluate the anger response in correlation to race-related stress. Specifically, greater exposure to racial discrimination was associated with higher anger, stress, and greater weight. In this study, I identified that race-related stress has a positive relationship between anger and stress. In congruence to studies (see Gibbons & Stock, 2017; Harper, 2015; Williams et al., 2012), I found a positive association between racial discrimination and anger, specifically culture racism and moderate levels of anger. Previous researchers identified significant aggression in females, though in this study, I found that anger was equally equivalent in African American males and females.

Anger, everyday stress, race-related stress (cultural, individual, global, and institutional racism) was not statistically significant predictor of BMI, $F(7, 100) = .708$. Anger, everyday stress, and race-related stress did not appear to impact one's weight collectively. This study revealed that individuals with race-related stress demonstrate a connection separately with anger, stress, and weight.

Racism experienced on an individual level, and racism experiences from policies developed for an institution were not endorsed at a significant level in this study. In addition, I did not find an association between BMI and race-related stress. These findings are inconsistent with previous research that related racial discrimination and physical health (Cozier et al., 2014; Keith et al., 2017; Rosenthal et al., 2013). This may be because the participants in this study provided self-reported weight and height, and the accuracy of reporting is unknown.

Other studies have focused on the association of perceived discrimination on negative emotional responses (Assari, 2017; Gibbons et al., 2014; Lewis et al., 2015). They have provided comprehensive details about how race-related stress contributes to biological and psychological pathways. Overall, the literature and findings of the study point toward a consistent finding race-related stress contribute to stress and anger, which could ultimately impact their physical health.

Limitations of the Present Study

The data collected from this study cannot provide a causal inference. Though the participants endorsed increasing stress, anger, and weight, the contributing factor could be past experiences that do not contribute to race-related stress. An additional

limitation of this study was that the surveys were based on self-report. According to Creswell and Creswell (2018), self-report questionnaires might have response bias; therefore, results may be inaccurate. Excluding other minority populations limited discernment to cross-culturally regarding racial discrimination among various cultures and may provide meaningful information across cultures and help understand the impact of mental and physical health. Another limitation was the self-report of BMI, which a health professional did not monitor for efficiency and accuracy of measurements.

Recommendations

Research for racial discrimination and its impact pertaining to health and mental health outcomes is needed. This study was able to identify that there is a correlation between weight, stress, anger, and race-related stress. There were limitations in this study that should be addressed, and future research should focus on assessing weight by using self-report. Even though BMI is a good measurement for obesity, the waist to hip ratio is an effective method for measurement. Also, I focused on stress, and the impact of stress on the immune system dramatically declines. Moreover, researchers should focus on perceived racism and its response on psychoneuroimmunology and psychophysiological health. Understanding how the other health systems in the body may be impacted by race-related stress could expand the knowledge base on how racial disparities impact minorities.

Implications

The research results provide information about racial discrimination among African Americans; this study explains how psychosocial factors affect physical and mental health. Results from this study indicate that African Americans are aware of the impact of anger on their health. The research also indicated a difference in how African American females perceived race-related stress, and it impacts them at a higher level than males. However, the research did not identify a correlation between BMI and race-related stress. The participants in this study were considered obese with high levels of perceived stress; Lazarus and Folkman's (1984) coping and stress appraisal theory provide groundwork related to the impact of stress and physical health. It would benefit African Americans to learn anger and stress management coping skills to promote more positive health outcomes. This study also evokes social change and encourages psychologists to promote awareness due to the ongoing mortality rates in the African American community. There must be a deliberate effort to address these negative experiences and the negative impact on physical and mental health. By gaining awareness about the psychosocial factors that affect African American communities, policymakers will have the research they need to advance practical policy solutions. Psychologists and mental health professionals should focus on different techniques to assist the African American population in stress and anger management in these toxic environments. Professionals should inquire about experiences of perceived racism during intake, thereby developing an understanding of the stressors in African Americans' lives.

This comprehension may help develop behavioral health and physical health-related programs focused on managing stress and anger properly and decreasing obesity and weight-related disease in the African American population. Furthermore, increasing awareness can create a positive change by having an open dialogue to allow African Americans to pursue more efficient methods of coping, which can precede an overall healthier lifestyle.

Conclusion

This study provided evidence of how race-related stress impacts stress, anger, and weight among African Americans in the United States. The analyses indicated that perceived racial discrimination impacts African Americans, impacting their everyday stress levels, anger, and greater weight; therefore, social implications are needed.

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Appendix A Demographic Questionnaire

Completion of the demographic questionnaire is significant for determining the influence of variety of factors on the results of this study. All of these records will remain confidential. Any reports that may be published will not include any identifying information of the participants in this study. Please check the appropriate line.

Gender:

Male

Female

Age: _____

Race/Ethnicity select all that apply.

African American or Black	Asian, Asian American
Caucasian or White	Hispanic/Latino
Native American	Other

Email Correspondence between Dr. Utsey and Amy Amin

From: Amy Amin

Sent: Thursday, July 19, 2018 8:32 PM

To: XXX@vcu.edu

Cc: Patricia A. Heisser

Subject: Permission to use IRRS-BV for Dissertation

Dr. Utsey,

I am a Clinical Psychology student at Walden University, working on my dissertation under the supervision of Dr. Patricia Hessier- Metoyer, Chair. I am interested in conducting a study to explore the relationship between racial discrimination, anger, stress and abdominal obesity among African Americans who reside in Virginia. I would like the use the Index Race-Related Stress Brief Version. In your article, "Development and validation of a short form of the Index of Race-Related Stress (IRRS)- Brief Version" (1999), you permit to use this scale. Please provide permission to implement the Index Race-Related Stress Brief Version in my study.

If you would like to discuss this further with Dr. Metoyer-Hessier or me, contact information is below. Thank you for your time and consideration.

Kind Regards,

Amy Amin

Patricia Hessier- Metoyer: XXX

From: Shawn O Utsey <XXX@vcu.edu>

Sent: Friday, August 3, 2018 3:03:35 PM

To: Amy Amin

Subject: Re: Fwd.: Permission to use IRRS-BV for Dissertation

Amy,

Yes, you have my permission to use the IRRS-B. I have attached the measure for you.

Shawn

Email Correspondence Between Dr. Cohen and Amy Amin

-------- Original message --------

From: Amy Amin < >

Date:07/19/2018 8:50 PM (GMT-05:00)

To: Sheldon Cohen < >

Cc: "Patricia A. Heisser" < >

Subject: Permission to use PSS for Dissertation.

Dr. Cohen,

I am a Clinical Psychology student at Walden University, working on my dissertation under the supervision of Dr. Patricia Hessier- Metoyer, Chair. I am interested in conducting a study to explore the relationship between racial discrimination, anger, stress and abdominal obesity among African Americans. I would like the use the Perceived Stress Scale. On the university website, it states that permission is not necessary, however at Walden University it's a requirement we receive approval from the author. Please provide permission to implement the Perceived Stress Scale in my study.

If you would like to discuss this further with Dr. Metoyer-Hessier or me, contact information is below. Thank you for your time and consideration.

Kind Regards,

Amy Amin

Patricia Hessier- Metoyer:

From: Sheldon Cohen < >

Sent: Friday, July 20, 2018 6:22:07 AM

To: Amy Amin

Subject: RE: Permission to use PSS for Dissertation

You are welcome to use the PSS in your study. SC

Sent from my Samsung Galaxy smartphone.

Correspondence of Emails between Amin Amin and Raymond Novaco

Dr. Novaco,

Thank you for that information, I noticed I missed typed. I meant assessment and not article. Also thank you for the feedback in reference to the short form, I was able to find numerous articles indicating implementation of the short form, but the information was vague. I should have questioned the authenticity. My apologies in reference to that typo. I also attached a screenshot of the information I found with the citation for your review.

Moreover, after reviewing the literature in reference to the DAR, I am very much interested in this version. I will update my proposal to reflect as such. Can you provide permission to implement this scale instead? Also, can you provide a copy of the DAR screening tool?

Kind Regards,

Amy

Dear Amy,

Thank you for the screen shot of what you found on PsyTESTS. I'll have to be in correspondence with them to correct the error. Whatever articles you found claiming that there was a "short form" of the NAS, they were not composed by research scholars. There has never been a short form of the NAS. There was a short form of the Anger Inventory, which later was revised and then became my Provocation

Inventory, but the structure and content of that instrument is very different from the NAS. You will see that in the descriptive document that I sent to you.

I have attached the DAR-revised instrument. This is not a "version" of the NAS. It is a 7-item screening tool. To best understand it, please first read the attached 2012 article that was published in Psychological Assessment, which is APA's major journal in the field. Some other articles concerning the DAR are attached. There is a 5-item version of the DAR, which has appeared in a number of published studies. However, I prefer that the 7-item measure be used. And you can see in the Psychological Assessment article that the two items that are left out of the DAR-5 indeed have incremental validity. I have a manuscript on the DAR-revised with colleagues in Australia and Spain presently under review and can send you that when a decision is reached.

Best wishes for your dissertation work. Do write again should you have further questions.

Ray Novaco

Raymond W. Novaco, Ph.D.