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## African American Men's Health: Regulating Race-Related Stress through Cognitive Flexibility

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AFRICAN AMERICAN MEN'S HEALTH: REGULATING RACE-RELATED STRESS  
THROUGH COGNITIVE FLEXIBILITY

by

Brian P. Littleton

A dissertation submitted to the Graduate College  
in partial fulfillment of the requirements  
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# AFRICAN AMERICAN MEN'S HEALTH: REGULATING RACE-RELATED STRESS THROUGH COGNITIVE FLEXIBILITY

Brian P. Littleton, Ph.D.

Western Michigan University, 2016

African American men have one the highest preventable mortality and morbidity rates in the United States (Rich, 2000; U.S. Department of Health and Human Services, 2015). Moreover, there is substantial health disparity between African American men and White men in the United States (Smedley, Stith, & Nelson, 2003). It has been stated that pervasive racism and discrimination are the most significant contributors for the disparity. Studies have shown race-related stress, which is derived from experiencing racism, discrimination or having internalized feelings as the result of an individual's racial status, has been associated with blood pressure, emotional distress, and physical health (Paradies, 2006). This study investigates the role of race-related stress and stigma consciousness, another contributing source of this type of stress, and their relationship to African American men's health. In addition, this study seeks to investigate if cognitive flexibility moderates race-related stress and stigma consciousness's relationship to African American men's health.

Participants comprised of 135 African American men were asked about their experiences with race-related stress. Participants' stigma consciousness, cognitive flexibility and health were also assessed. A series of hierarchical multiple regressions found that race-related stress and stigma consciousness significantly predicted the health and mental health problems in a sample of African American men. The results also revealed that cognitive flexibility moderated race-

related stress's relationship to health and mental health in African American men. Limitations of this study are discussed along with future recommendations.

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## **CHAPTER I**

### **INTRODUCTION**

Significant mental health and health disparities still exist between racial minorities and Whites despite the tremendous strides made toward equality for underrepresented racial minorities. African American men are especially affected by health disparities (Brondolo, Gallo, & Myers, 2009; Farmer & Ferraro, 2005; Franks, Muennig, Lubetkin, & Haomiao, 2006; Gorman & Ginsberg, 2004; Mays, Cochran, & Barnes, 2007; Paradies, 2006; Smedley, et al., 2003; US. Department of Health and Human Services, 2015; Williams & Jackson, 2005; Williams, Neighbors, & Jackson, 2008). The US. Department of Health and Human Services Office (2015) reported, “Black males experience the lowest life expectancy at birth and are disproportionately impacted by chronic health conditions relative to other racial and ethnic or sex groups” (p.1). In addition, Black males have higher mortality rates from medical conditions and higher preventable morbidity (Rich, 2000). According to the American Cancer Society (2011), African American men have significantly lower cancer survival rates and higher mortality rates for lung, prostate, and colorectal cancer compared to White men. In addition, African American men are more likely to die from myocardial infarction (MI) and peripheral vascular disease (PVD) compared to White men (Center for Disease Control and Prevention [CDC], 2009). Type II diabetes is another medical disorder that is more prevalent in African American men than their White counterparts (CDC, 2011a). Research has sought to uncover reasons for the huge disparities that impact African American men. Undoubtedly, heritability of familial health risk, health behaviors, weight related issues, and physical activity have some impact upon health

disparities in the United States but do not fully account for the disparities (Sankar et al., 2004). Smedley et al. (2003) posited that historical and pervasive racial and ethnic discrimination (e.g., racism) was the most significant factor. The following sections provides a summary of health issues that are germane to the health of African American men.

## **Diabetes**

Diabetes is a chronic illness that impacts millions of Americans (CDC, 2011a). Diabetes mellitus is a disorder that causes increased levels of glucose in the blood and urine (Figaro, Vaughn, & Outlaw, 2010). There are three different types of diabetes mellitus. Type I diabetes is the result of the pancreas not producing insulin. Type II diabetes occurs when the body cannot regulate and effectively use insulin produced. The third type is gestational diabetes mellitus which occurs during pregnancy and typically resolves itself after pregnancy. African American men are at twice the risk for developing Type II diabetes compared to White men (Cowie et al., 2006; U.S. Department of Health and Human Services, 2015). In addition, African American men are more likely to be hospitalized related to diabetes complications and have a disproportionately higher mortality rate related to diabetes (Harris, Eastman, Cowie, Flegal, & Eberhardt, 1999; CDC, 2009; U.S. Department of Health and Human Services, 2015). Despite the problematic nature of diabetes and self-management behaviors associated with diabetes in African American men, there is a paucity of literature specifically focusing on African American men (Sherman, 2013).

Studies that have focused on African American men have indicated that poor outcomes related to diabetes are related to psychosocial factors, hypertension, obesity, and self-care behaviors (Hawkins, et al, 2015; Sherman, 2013). A common theme noted in the literature on diabetes and African American men is the perception of diabetes. Several studies have illustrated

that African American men share a belief that diabetes could be prevented (Liburd, Namageyo-Funa, Jack, & Gregg, 2004; Liburd, Namageyo-Funa, & Jack, 2007; Skelly et al., 2006). Liburd et al. (2007) conducted a qualitative study with 16 African American men from South Carolina utilizing in-depth interviewing to examine the relation between African American men's idea of masculinity and diabetes. Thematic patterns emerged in the study that showed African American men had traditional notions of masculinity such as self-reliance, independence, and accountability to self and the community. Yet, a majority of the participants indicated that they felt powerless to prevent diabetes because they saw other families with diabetes. Although the study cannot be generalized to the larger population, the results presented a paradox that African American men had a strong belief in accountability and self-governance but yet felt they did not have the power to prevent diabetes.

In a study of 10 African American men, diabetes self management was significantly associated with social support, patient-provider relationship, structural barriers, and waiting until symptoms became severe (Hawkins et al., 2015). Noteworthy in the study was many of the participants did not seek help until it directly impacted their ability to work despite the recognizing the symptoms. The study was limited by utilizing only a sample of urban African American men and may not be representative of African American men in other settings. In addition, the study did not provide background on the occupation or type of work of the employed men. The type of work may influence when an individual would first notice the severity of symptoms. For example, an individual performing manual labor or a having a more physically taxing job more likely would notice symptoms such as fatigue and muscle aches faster compared to those in a non-manual labor setting.

## **Obesity**



Obesity is rising in the United States and poses a serious public health problem. The rise in obesity has been noted in all races, age groups, and gender and has especially impacted African American men (CDC, 2011b). There is no single cause of obesity. Obesity is the result of complex interactions between a multitude of variables such as environment, biology, culture, and economics. Obesity occurs when energy intake exceeds energy excretion subsequently causing a significant increase in body weight (Figaro, BeLue, Beech, 2010). There is not a single definition of obesity. One definition posits that obesity is when an individual weighs 120-130% over their recommended weight for their height. In addition, obesity has been defined using body mass index (BMI) which is a formula that divides body weight by height in meters squared. Depending on an individual's BMI, they are considered overweight, obese, or super morbid obese.

The CDC (2011b) reported that approximately 65% of the adult population in the United States are overweight. Moreover, there appears to be a significant increase of obesity over the past 25 years among African Americans. The prevalence rates of obesity between 1988–1994 and 2007–2008 increased from 21.1% to 37.3% for African American men (CDC, 2011b). Current data from US. Department of Health and Human Services (2015) suggested that 71% of U.S.-born Black men are considered overweight or obese. The available evidence also seems to suggest that socioeconomic status is related to obesity in African American men according to a secondary analysis of American Changing Lives Survey data set which indicated that middle-class African American men had a higher BMI than poor African American men (Bruce, Sims, Miller, Elliott and Ladipo, 2007). The study had several limitations such as age of the database and responses were based on self-report. Without a standard measurement, individuals in the study could have overestimated or underestimated their weight and height. This is noteworthy as

a large epidemiological study consisting of 15, 656 African American and European American adults suggested that African American men tend to underestimate their weight and overestimate their height which effects the calculation of BMI (Johnson, Bouchard, Newton, Ryan, & Katzmarzyk, 2008).

Obesity is a major public health issue because of its comorbidity to other diseases. Research has provided evidence that obesity and being overweight is related to depression, hypertension, diabetes, and certain cancers (Figaro et al., 2010; Onyike, Crum, Lee, Lyketsos, & Eaton, 2003; Stein & Coldwitez, 2004; Stunkard, Faith, & Allison, 2003). African Americans are at an even higher risk for developing a chronic disease due to the relationship between obesity and depression (Stecker, Fortney, Steffick, & Prajapati, 2006). Stecker et al., (2006) examined the relation between race, obesity, depression on chronic diseases. The study was conducted by examining medical records at a university-based family medical clinic. The study had a total of 8,197 patients of which 53% were non-Hispanic White and 38% were African American. The results revealed that race, obesity, and depression were additive and interacted to increase the risk for having hypertension, hyperlipidemia, and diabetes. The results of the study were limited as it did not account for gender differences in the analysis. Nevertheless, the results should be taken under consideration as it applies to African American men.

### **Hypertension**

African American men have one of the highest prevalence rates and incidence rates for hypertension (CDC, 2008). Recent data from U.S. Department of Health and Human Services (2015) reported “34% of U.S.-born Black males had been diagnosed with hypertension by a doctor or other health professional” between 2000 and 2012. However other estimates report a higher rate of 43% of Black men having high blood pressure (U.S. Department of Health and

Human Services, 2015). The high rates of hypertension are cause for alarm as it places African American men at increased risk for cardiovascular disease such as myocardial infarction and stroke (Flack, Ferdinand, Nasser, 2003). Correspondingly, hypertension is considered a modifiable risk factor for cardiovascular disease (CDC, 2008). A meta-analysis has shown that a decrease in blood pressure through use of drugs has shown a significant decrease in stroke, myocardial infarction, and death (Collins et al., 1990). Although, there is evidence to suggest blood pressure can be controlled through drug therapies and lower the risk for cardiovascular disease, African American men had 4 times the hypertension mortality rate compared to White men (American Heart Association, 2003). Various theories have been posited as to the reasons African American men have higher prevalence rates and mortality rates from hypertension. Studies have suggested that socioeconomic status, medication adherence and high prevalence rates of comorbidity with other cardiovascular disease risk factors such as diabetes, obesity, physical activity, poor dietary patterns and tobacco smoking are all possible explanations (Critchley & Capewell, 2003; Flack et al., 2003; Ibrahim, 2003; James et al, 2006; Tucker, 1999). In addition, it has been posited that African Americans have more complications from hypertension than Whites (Flack et al., 2003). Other environmental factors have also been considered such as high levels of stress, racism, and physicians not treating hypertension as aggressively in African Americans (Barnes, Schneider, Alexander, & Staggers 1997; Clark Anderson, Clark, & Williams, 1999; Clark et al., 2001; Kulkarni, O'Farrell, Erasi,& Kochar, 1998).

### **Mental Health**

African American men tend to have a more holistic view of health. However, many research studies have traditionally treated physical health as separate from mental health.

Conversely, there is a dearth of literature with a specific focus on African American men and mental health. Ward and Mengesha (2013) literature review found only 19 empirical studies over the last 25 years had a focus on African American men and depression. Given the prevalence rate between 5% and 10% for depression in African American men (Ward et al., 2013), the lack of specific studies is disconcerting. Likewise, there is a shortage of research with a specific focus on anxiety disorders in African American men. However, a review of literature postulated that African American men are especially vulnerable to depression and anxiety due to the status in society and exposure to environmental stressors (Banks, Kohn-Wood, & Spencer, 2006; Lincoln, Taylor, Watkins, & Chatters, 2011; Rich, 2000; Watkins, Green, Rivers, & Rowell, 2006; Watkins, Hudson, Caldwell, Siefert, & Jackson, 2011; Watkins, et al., 2010).

The question of whether certain mental health diagnoses are overrepresented or undercounted in African American men has stirred much debate. The debate has primarily centered on mental health clinicians correctly recognizing mental health issues and correctly diagnosing those issues (Leo, Sherry, & Jones, 1998; Minsky, Vega, Miskimen, Gara, & Escobar, 2003). A possible explanation for the misdiagnosis could be related to how African Americans report depression and its expression of symptoms (Baker, 2001; Jones & Gray, 1986; Gary & Berry, 1985; Waite & Calamaro, 2009). Baker (2001) analyzed video sessions of African Americans who were depressed and suggested they may present as irritable, angry, stoic, or overworked. Watkins and Neighbors (2007) found similar results in their study which examined the perceptions of mental health among young African American men. The study included forty-six African American males in college. Using a focus-group format, the researchers analyzed the transcripts for themes. Several themes such as stoicism and belief that depression was a sign of weakness were noted throughout the various focus groups. Another important finding from the

study was the language used to describe depression and mental health. The results of the study indicated that although the participants knew terminology associated with depression and mental health, they were more comfortable speaking to each other using culturally-based jargon such as “getting beat” and “holding it down”. Kendrick, Anderson, and Moore (2007) study of African American men and depression also found that they used similar language to describe depression. While both studies indicated that African American men used culturally-based jargon to describe symptoms and mental health, it should be noted that the studies consisted of younger African Americans who were in college. In a study of 1,666 older African American men, the results suggested that older African American men were more likely to not use language such as feeling severe anxiety or depression but instead use words such as “downhearted and blue” to describe their emotional health (Mitchell, Watkins, Shires, Chapman, & Burnett, 2015). It is possible that there may be an underreporting of mental health problems and symptoms among African American men if clinical language is used. The issue may be more compounded given that many studies use self-report instruments to measure psychological well-being, emotional health, and mental health.

### **Racism as a Stressor**

Racism is a complex construct with varying definitions. Clark et al. (1999) proposed the following definition of racism as “the beliefs, attitudes, institutional arrangements, and acts that tend to denigrate individuals or groups because of phenotypic characteristics or ethnic group affiliation” (p.805). Racism can also be internalized or manifested on an interpersonal, institutional, and cultural level which then may be felt different based on the contexts (Jones, 1972). For instance, cultural racism can be felt on an interpersonal level or societal level. On an individual level, racial discrimination has shown to be a significant stressor with psychological

and physiological consequences for African Americans (Brondolo, Rieppi, & Kelly, & Gerin, 2003; Bennett, Merrit, Edwards, & Sollers, 2004; Clark et al., 1999; Mays et al., 2007; Pieterse & Carter, 2007; Harrell, Hall, Taliaferro, 2003). Although African Americans may experience discrimination and racism on an individual level, it may also occur in subtler forms such as microaggression or aversive racism rather than overt forms (Dovidio, 2001; Sue et al., 2007). While interpersonal racism as a predictor of physiological and mental health has received most of the attention in the literature, cultural and institutional racism has also been shown to be a significant predictor of quality of life (Utsey, Chae, Brown & Kelly, 2002; Utsey, Payne, Jackson, & Jones, 2002).

### **Stigma Consciousness**

Receiving less attention in health and racism literature is the role of stigma consciousness. Stigma consciousness is the belief that an individual will be stereotyped regardless if the individual's behavior confirms or denies the stereotype (Pinel, 1999). Stigma consciousness has been shown to act as a form of internalized oppression from racism, sexism, or homophobia (Lewis, Derlega, Valerian, Clark, & Kuang, 2006). In addition, Pinel (1999) postulated that those with higher levels of stigma consciousness would more likely detect discrimination and circumvent situations with stereotype implications. An example of stigma consciousness is an African American male who consciously wears a business suit to work every day although the workplace dress is casual. It may be assumed that the person in the situation is acting out of the knowledge that negative stereotypes such as being uneducated and is hoping to avoid being stereotyped by wearing the business suit to work. Warner and Morris (1997) described a similar phenomenon occurring in the context of consultation. Warner et al., (1997) stated that African Americans must self-evaluate themselves and question how they may be

perceived by their white consultees in the pre-relationship phase of consultation. It was further noted that African American consultants must remain vigilant about how they are perceived throughout the consultation process. It could assume that such rigidness and concern about one's perception constitutes a form of stress.

Johns, Inzlicht, and Schmader (2008) posited that stigma and stereotype threat can have a negative effect on neurocognitive processes (e.g. executive functioning and cognitive flexibility) and emotional regulation. Subsequently, an individual would encounter a higher stress load. Townsend, Major, Gangi, and Mendes (2011) found that women who perceived identity threats from ambiguous sexist cues secreted more cortisol than women who did not sense or experience ambiguous sexist cues. Studies have indicated that higher cortisol levels are associated with lower executive functioning, cognitive flexibility, memory, and self-regulation (Townsend et al., 2011; Belanoff, Gross, Yager, & Schatzberg, 2001; Kirschbaum, Wolf, May, Wippich, & Hellhammer, 1996; McCormick, Lewis, Somley, & Kahan, 2007;). Inzlicht, McKay, and Aronson (2006) study showed that African Americans who are more sensitive to stigma were more likely to report decreased levels of self-regulation. Moreover, individuals were more likely to have decreased executive attention which is required for regulation of stress (Williams, Suchy, & Rau, 2009; McEwen & Gianaros, 2010).

### **Cognitive Flexibility and Stress**

Cognitive flexibility, a neurocognitive process, overlaps with other psychological constructs such as fluid intelligence and executive function (Flanagan & Harrison, 2011; Kane & Engle, 2002; Kashdan & Rottenberg, 2010). Although there is not a unified theory or single definition of cognitive flexibility, Ionescu (2012) posited a framework to understand cognitive flexibility. Ionescu (2012) suggested that cognitive flexibility is the interaction of cognitive

mechanisms (e.g. executive functions, conflict monitoring, previous knowledge,) in the interaction with task demands, contextual cues, and sensorimotor aspects. Important in Ionescu (2012) framework is the understanding that cognitive flexibility is associated with adapting to changes in one's environment. Undoubtedly, cognitive flexibility will have a role with managing stressors. Luria and Torjman (2009) suggested that cognitive flexibility along with problem solving skills and reasoning skills are needed to cope with stressors. Cognitive flexibility could allow an individual to not perceive a stressor as threatening by shifting their focus or changing their belief about a stressor to a less threatening belief. Assuming cognitive flexibility's role in managing stressors, it is important to understand how it is associated with race related stress and health.

### **Limitations of Racism and Health Studies**

It is no surprise that measurement and design issues have been raised given the complexity of racism and various manifestations of racism, (Krieger, 1999; Harrell et al, 2003; Landrine & Klonoff, 1996; Paradies, 2006). Beyond measurement issues, the approach to investigating this phenomenon has also been debated. Krieger (1999) noted that research examining the relationship between racism and health have approached it from either epidemiological or individual perspective. It has also been postulated that many of the studies are done as secondary data analysis thereby making interpretation of results imprecise (Paradies, 2006). Moreover, Paradies (2006) literature review indicated that racism was poorly defined and only 25% of the 138 studies reviewed had a formal definition of racism. She further noted that the measures did not fully capture the various manners which African Americans or minorities can experience racism. As racism occurs on multiple levels and manifests itself different depending on the context, studies should use measures that attempt to capture the multiple levels



(Jones, 1997; Utsey and Ponterotto, 1996; Utsey, 1999). Krieger (1999) stated, "global questions are likely to underestimate exposure and are of little use for guiding interventions and policies to reduce exposure" (p. 323).

Measurement problems are not only isolated to racism but also the assessment of health. Numerous studies have indicated that African Americans have a different perception of mental health and health (Kendrick et al., 2007; Ravenell, Johnson, & Whitaker, 2006; Watkins et al., 2007). Thus, their perception may not align with actual and observed health status. Stevens, Kumanyika and Keil (1994) found that African American females were less likely to describe themselves as overweight compared to White females. There is no reason to suspect that a similar perception would not be found among African American men. Second, an individual's health knowledge may impact how they perceive their health.

### **Statement of the Problem**

African American men have higher rates of hypertension, diabetes, and mortality rates compared to White men. The addition of race-related stress along with general life stress increases the allostatic load (McEwen, 2000). Subsequently, this can lead to decreased health. Although, studies have shown that race-related stress is related to psychological and physiological health, few studies have attempted to capture the race-related stress derived from individual, institutional, and cultural racism. Moreover, there is no known study that has specifically investigated the relation of race-related stress and cognitive flexibility to African American men's health.

### **Description of the Study**

In the last 20 years, psychological research has provided ample support for the assertion that race-related stress is related to health in African Americans. Despite the plethora of

literature, many questions remain. More specifically, there is not much known about the various manifestations of race-related stress, stigma consciousness, and cognitive flexibility's relationship to African American men's health. The primary purposes of this study is to examine how race-related stress and stigma consciousness is related to the health of African American men and explore the moderating effects of cognitive flexibility.

In order to accomplish the task of understanding the complex relationship of race-related stress, stigma consciousness, and cognitive flexibility in African American men's health, a battery of surveys and assessments were given to African American men in the Midwest. After the data was collected, a series of moderated multiple regressions were used to understand the predictive relationship of race related stress and stigma consciousness to health as well as determine if cognitive flexibility moderated the relationship between the predictive variables and health in African American men.

### **Research Questions and Hypotheses**

1. Does race-related stress and stigma consciousness predict African American men's perceived health?
  - a. Hypothesis 1: It is expected that African American men who report collectively higher levels of race-related stress and stigma consciousness will have lower levels of perceived health.
2. Does cognitive flexibility moderate the relationship between stigma consciousness, race-related stress, and African American men's perceived health?
  - a. Hypothesis 2: It is expected that cognitive flexibility will moderate race related stress and stigma consciousness's relationship to perceived health among African American men.

3. Does race-related stress and stigma consciousness predict African American men's mental health?
  - a. Hypothesis 3: It is expected that African American men who report higher race related stress and stigma consciousness will report decreased mental health.
4. Does cognitive flexibility moderate stigma consciousness and race-related stress's relationship to African American men's mental health?
  - a. Hypothesis 4: It is expected that cognitive flexibility will decrease the impact of race related stress and stigma consciousness on African American men's mental health.

## **Summary**

African American men disproportionately face higher morbidity and mortality rates in the United States. The literature is clear that racism, prejudice, and discrimination are associated with higher morbidity rates and mortality rates in African Americans (Clark et al., 1999; Rich, 2000; Williams, et al., 2008; Williams & Mohammed., 2009). Not so clear is the relationship between the accumulative effects of race-related stress (i.e., cultural, institutional, or interpersonal) and stigma consciousness on African American men's health. Moreover, there are a lack of studies focusing on moderating and mediating variable. Studies that have investigated moderators and mediators of stress have primarily focused on identity factors, self-esteem, and spirituality (Paradies, 2006).

To further understand race related stress, stigma consciousness, cognitive flexibility and health of African American men, a review of literature was conducted and is presented in Chapter II. The methods and procedures for investigating the research questions are presented in

Chapter III. The results and findings of the study are presented in Chapter IV. Implications and discussion of the results are discussed in Chapter V.

## **CHAPTER II**

### **REVIEW OF THE LITERATURE**

There is an abundance of literature supporting racism and discrimination's relationship to mental and physical health among ethnic and racial minorities (Chae, Lincoln, Adler, & Syme, 2010; Clark et al., 1999; Harrell, 2000; Jackson et al., 1996; Landrine et al., 1996; Mays et al., 2007; Outlaw, 1993; Paradies, 2006; U.S. Surgeon General Report, 2001; Utsey et al., 1996; Verkuyten, 1998; Williams, Yu, Jackson, & Anderson, 1997). Yet there is a need for research that explores the impact of racism from individual, cultural, and interpersonal level to physical and mental health in African American men. A call has also been put forward that future research should explore mediators and moderators of race related stress (Harrell, et al., 2003; Paradies, 2006). In addition, research should focus on diversity among African Americans due to majority of the research has focused mostly on lower income African Americans and African American women (Sellers, Bonham, Neighbors, Amell, 2009). This chapter will present an overview of relevant literature related to stress, race related stress, stigma consciousness and African American men's health. Lastly, literature and research related to cognitive flexibility and its association to health will be reviewed.

#### **Conceptualization of Stress**

Stress is ubiquitous and no one is immune from the stress process. Stress is the end result of a cognitive and physiological process (Lazarus & Folkman, 1984; McEwen & Stellar, 1993; Selye, 1982). Individuals experience stress on a daily basis. Various definitions and models of stress have been proposed thereby making stress "a concept without a clear boundary" (Ward,

Jones, & Phillips, 2003). Moreover, depending upon a researcher's field of study, stress has been studied from a physiological or psychological perspective. Nevertheless, the consensus view is there is a strong relationship between stress and health (McEwen et al., 1993; McEwen, 2008). The available evidence suggest stress is negatively related to immunological functioning (Kiecolt-Glaser, McGuire, Robles, & Glaser, 2002), cardiovascular disease (Lagraauw, Kuiper, & Bot, 2015), and body weight (Kim, Bursac, DiLillo, White & West, 2009).

**Transactional Model of Stress.** Lazarus et al. (1984) model of stress has been one of the most cited theories of psychological stress. Lazarus et al., (1984) defined stress as “psychological stress involves a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well being” (p. 19). If the individual's resources are overtaxed, a physiological response is produced. The proposed model is based on a cognitive approach and includes three integral parts which are person-environment interaction, primary appraisal, and secondary appraisal. Lazarus et al. (1984) model is also known as the Transactional Model because the dynamic interaction that occurs between the person and environment.

The person-environment interaction forms the foundation of the model. Lazarus et al., (1984) proposed that an individual's interaction with an environment causes the individual to develop a cognitive appraisal. The first step in the appraisal process is the primary appraisal. The primary appraisal represents an individual's first assessment of the event or situation. Based upon Lazarus et al., (1984) model, the individual's assessment of the event or situation determines if the event is stressful or not. The event can be categorized as irrelevant, benign positive, or stressful. An irrelevant assessment refers to situation which individuals have no gain or loss from the interaction (Lazarus et al., 1984). A benign positive assessment occurs when the

outcome of the interaction will result in a net gain and the psychological well-being of the individual is preserved or intact (Lazarus et al., 1984). Stressful appraisals refer to when the individual perceives the interaction to be a harm/loss, threat, or challenge (Lazarus et al., 1984). A harm/loss assessment describes the process in which damage or the insult has already occurred. The damage or insult the individual incurs may be physical or psychological. A threat assessment describes a situation in which an individual expects a harm or loss to occur. A challenge assessment describes the process which an individual's interaction with the environment produces the chance for the individual to grow or there is a net gain (Lazarus et al., 1984).

The secondary appraisal is when the individual cognitively evaluates their options to deal with the event or situation. The individual will also evaluate their coping resources. An individual will cope with the stressor using either emotion-focused coping strategies or problem-focused coping strategies. Emotion-focused coping refers to the self-regulation of their emotion when interacting with the stressful event or situation. Problem-focused coping refers to when individuals attempt to change or modify the stressor.

**General Adaptation Syndrome.** Much of the earlier research on physiological stress can be traced to Hans Selye's model, which he described as general adaptation syndrome. Selye (1982) model is comprised of 3 stages which are alarm, resistance, and exhaustion. The alarm state is the initial reaction to the stress and noted by the activation of the fight-flight response or sympathetic nervous system. An individual may begin to experience increased physiological arousal, heart rate, respiration rate, and glucose. The resistance state is the body's reactionary response to prolonged stress. Typically, an individual's parasympathetic nervous system becomes activated which helps to return the body to normal levels. The exhaustion state is the

body's reaction to long-term, continuous stress. It is during this stage, that individuals begin to experience psychosomatic complaints, health problems, and immune system dysregulation (Kiecolt-Glaser & Glaser, 1995). Although Hans Selye is credited for introducing stress into the public and scientific community's lexicon, recent research has amended and challenged his theory of stress (McEwen, 2005).

More recent research has indicated gender differences exist with regard to female response patterns (Taylor, et al., 2000). Kudielka and Kirschbaum (2005) literature review of sex differences and stress responses concluded that males generally produce higher levels of glucocorticosteroids than females even when experiencing the same acute stressor. In addition, Kudielka et al. (2005) hypothesized that the difference could possibly explain higher prevalence of cardiovascular disease and diabetes in men.

**Allostatic Model of Stress.** A more recent term that associated with stress is 'allostasis'. McEwen (1998) described allostasis as the protection and adaption of physiological responses to a challenge. The physiological responses of the autonomic nervous system, hypothalamus-pituitary-adrenal (HPA) axis, metabolic, cardiovascular and immune systems are all involved in allostatic process (McEwen, 1998). It has been further postulated that adapting to the challenge results in a higher allostatic load. Allostatic load has been defined as "the wear and tear on the body and brain resulting from chronic overactivity or inactivity of physiological systems that are normally involved in adaptation to environmental challenge. (pp.37)" Researchers using allostasis as a framework typically measure biomarkers related to cardiovascular, immune system, and the HPA axis (Seeman, Singer, Rowe, & McEwen, 2001; Gruenewald, Seeman, Ryff, Karlamangla, & Singer, 2006).



A study by Deuster, Kim-Dorner, Remaley, and Poth (2011) explored the health status and allostatic load of African Americans and whites. Eighty-four African Americans and 45 Whites' allostatic load was calculated utilizing metabolic, anthropometric, immune, behavioral, and psychosocial/personality measures. Results from the study provided evidence African Americans tended to have a higher allostatic load compared to whites. Despite not being able to isolate the source of the stress and reason for higher allostatic load, it provided a possible explanation for health disparities in African Americans.

### **Race-Related Stress**

Several researchers have delineated from psychological models of stress and developed minority stress models to explain the stress process as it specifically applies to African Americans, Latinos, and lesbian, gay men, and bisexual populations (Cervantes & Castro, 1985; Clark, et al., 1999; Meyer, 2003; Myers, 1982, Outlaw, 1993, Slavin, Rainer, McCreary, & Gowda, 1991). The aforementioned models all had the underlying assumption that minority stress is unique to the oppressed group and stems from societal structures and institutions. In addition, the models assume the same physiological pathway for stress is used. A major theme in African American stress models is the role of racism and discrimination.

Racism is widespread and prevalent in the United States. Yet, there is no single agreed upon definition. However, it can be agreed upon that racism is visceral (Utsey et al., 1996). Jones (1972) proposed that racism can manifest through three distinct forms: individual racism, institutional racism, and cultural racism. Individual racism is centered on the belief that blacks are inferior to whites because of genotypical and phenotypical traits. The phenotypical traits also serve as the basis of social behaviors and cognitive abilities. A key component to understanding individual racism is “the uncompromising, unalterable use of white evaluative norms, with the

unquestioned assumption of their (i.e., white) superiority” (p. 418). Jones (1997) defined institutional racism as:

established laws, customs, and practices which systematically reflect and produce racial inequities in American society. If racist consequences accrue to institutional laws, customs, or practices, the institution is racist whether or not the individuals maintaining those practices have racist intentions. (p.438)

Jones (1997) further noted that institutional structures serve as a vehicle for cultural racism.

More specifically, Jones (1997) defined cultural racism as:

the cumulative effects of a racialized world-view, based on belief in essential racial differences that favor the dominate racial group over others. These effects are suffused throughout the culture via institutional structures, ideological beliefs, and personal everyday actions of people in the culture, and these effects are passed on from generation to generation. (p.472)

Jones (1972) proposed that the three forms of racism interact through four contexts which are: interpersonal context, collective context, sociopolitical context, and cultural-symbolic context. Racism on the interpersonal level is manifested when dominant group members are prejudiced and use discriminatory practices against individuals from the minority group. The manifestation on the individual level can be covert or overt (Jones, 1972). Moreover, interpersonal racism can be intentional or unconscious. There is a belief that covert forms of racism have risen more in contemporary times although overt racism still occurs (Sue, 2010). Collective context refers to racism that impacts groups on a large scale such as racial disparities in employment rates, educational attainment and the criminal justice system (Jones, 1972, 1996).

Racism is seen through the sociopolitical context when racism and race is discussed in public forums (Jones, 1972). Cultural-symbolic racism is manifested through arts, media, literature, and scientific research. An example of cultural-symbolic racism is when racial minority groups are negatively portrayed in the media. Another example is within the domain of music. Classical music from the works of Beethoven, Bach, and Mozart are heralded as great and superior to other forms of music such as jazz and hip-hop which African Americans have a larger role in creating and following.

The degree and forms of racism experienced by African Americans can vary depending on their socioeconomic status or social position (Paradies, 2006; Ren, Amick, & Williams, 1999; Williams et al., 2009). The literature is mixed regarding whether or not African Americans with higher social status experience more racism than African Americans with lower social status (Gee, 2002; Ren et al., 1999; Williams et al., 1997). Possible explanations for the differences could be related to an instrument's inability to measure the various levels of racism experienced (Krieger, 1999; Paradies, 2006). It is important to note that racism is subtler than in the era of Jim Crow. Subsequently, instruments used in race related research should reflect the expression of racism in a current context.

**Race Related Stress and African American Men's Physical Health.** Research has shown that African American men have a very broad view of health and traditionally view health to include mental health, physical health, and general well-being (Ravenell et al., 2006; Royster, Richmond, Eng, & Margolis, 2006; Watkins et al., 2007; Watkins et al., 2010). Likewise, African American men do not differentiate between physical health and mental health when considering their health status. Regardless of African American men's perspective of health, significant health disparities exist due to systemic and historical factors (Smedley et al., 2003).

Systemic and historical factors are highlighted by the fact that racial minorities are more likely to receive lower quality health care and different treatment regimens even after accounting for income level, age, comparable conditions, and insurance status (Smedley et al., 2003). Complicit in the health disparities literature is the role of race related stress.

Pascoe and Richman (2009) conducted a meta-analytic review of studies focusing on the relationship between perceived discrimination and health. The literature search included key words associated with discrimination such as racism, sexism, and prejudice. A total of 769 articles, dissertations and book chapters were found using their key-word search. The article had to focus on health outcomes related to discrimination in order for the study to be included in the meta-analysis. A total of 134 articles were eventually selected for analysis. It was noted that 88 of the 134 articles were specific to racial discrimination. The results of the analysis indicated that increased levels of perceived discrimination were related to negative physical health. In addition, increased levels of perceived discrimination were associated with increased physiological stress responses.

Williams et al. (1997) seminal study examined the effects of social economic status, stress, and discrimination on health. The study was based on the sample from the 1995 Detroit Area Study. The analysis specifically focused on the responses of 520 Whites and 586 African Americans. They found that African Americans had higher rates of self-reported ill health and race related stress was a significant predictor. Income and education levels were also shown to interact with race-related stress which produced worse health outcomes in African Americans. The results also suggested that race-related stress was associated with mental health issues more than physical health in African Americans. A limitation of the study was the race-related stress

measure. The measure used only nine items which asked if the participants experienced an event such as “receiving poorer service than others in a restaurant or stores” (p.340).

Few studies have examined the relationship between racism and diabetes. Even less studies specifically focus on African American men. A relationship was found to exist between coping style, experiences of racism and perception of health in a study of 30 African American women and 12 African American men with diabetes, (Moody-Ayers, Stewart, Covinsky, & Inouye, 2005). Results indicated that men reported higher lifetime exposure to racism than women and men were more likely to rate their health as good to excellent. Moody-Ayers et al., (2005) further posited that African Americans’ experiences with racism may influence their self-management behaviors, provider-patient relationships, and overall health. The study is limited by the very small sample size of African American men in the study. In addition, the average age of the participant was 62 years old. It is plausible that older African Americans may experience discrimination and racism differently than younger African Americans.

There has been a plethora of literature investigating the effects of racism, discrimination, and prejudice on blood pressure (Paradies, 2006). However, the literature has been unclear on the relation between racism and blood pressure when income and education is included in the models (Brondolo et al., 2003; Williams et al. 2009; Harrell et al., 2003). Sellers et al. (2009) study of middle-class African American men found a negative relationship between racial discrimination and mental health but no relationship between racial discrimination and physical health. Krieger and Sidney (1996) found a significant relationship between blood pressure and experiences of discrimination among professional African Americans and working-class African Americans. Interestingly, blood pressure was higher in working-class African Americans than professional African Americans although they reported higher levels of discrimination. Chae, et

al., (2010) found similar results regarding an association between discrimination and cardiovascular events. It should be noted that a major limitation of the aforementioned study was it is based on secondary data analysis from a larger national study. Conversely, the measures used to measure discrimination may not have adequately captured African Americans' experience with racism and discrimination.

**Race Related Stress and African American Men's Mental Health.** African American men are faced with many challenges such as high unemployment rates and lower educational attainment rates. These challenges directly threaten the livelihood and welfare of African American men. As previously mentioned, race-related stress is an additional stressor to the aforementioned stressors. Studies have shown that race related stress along with general life stressors are associated with psychological distress and psychological well-being (Banks et al., 2006; Pieterse et al., 2007; Sellers et al., 2009; Torres, Driscoll, & Burrow, 2010; Utsey, 1997; Watkins, Walker & Griffith, 2010). There is some evidence to suggest that race related stress has more of an impact on African Americans' mental health compared to physical health (Williams et al., 1997). The emphasis on understanding how race related stress affects mental health is important given it has been hypothesized that African American men are likely to experience more racial discrimination (e.g. race related stress) than African American women (Banks et al., 2006) and the likelihood of African American men seeking mental health treatment is lower compared to Whites (Snowden, 1999).

There has been debate regarding race related stress as a separate and unique stressor. Pieterse and Carter (2007) extended our understanding of the relationship between general life stress, race related stress, and psychological health among African American men. The study's sample included 220 African American men between the ages of 18 to 53 years old. It is noted

that 21% of the participants ethnically identified as Caribbean or African. The participants were administered the Perceived Stress Scale, a modified version of the Schedule of Racist Events, and Mental Health Inventory. The findings from the study indicated that race related stress was a unique predictor and that increased levels of race related stress were associated with increased levels of psychological distress and decrease in psychological well-being. Another interesting finding from the study was working class African Americans reported experiencing higher levels of race related stress compared to middle class and upper class African American men. Overall, the findings in the study were consistent with a more recent study by Watkins, et al. (2011) suggesting that discrimination was a significant predictor of depression in African American men in middle adulthood.

Race related stress has also been shown to be associated with other mental health issues. Klonoff, Landrine, and Ullman (1999) examined the relationship between racial discrimination and mental health symptoms in a sample of African American adults ranging in age from 18 to 79 years old. The sample included a total of 520 African Americans of which 243 were men. The results of the study found that racial discrimination significantly predicted symptoms of anxiety, depression, somatization, and obsessive compulsive.

Banks et al. (2006) investigated the association of everyday discrimination, depressive symptoms, and anxiety related symptoms using data from the 1995 Detroit Area Study. The participants completed face-to-face structured interviews with the goal of assessing their experience with discrimination, depressive symptoms and anxiety symptoms. It was noted that African American men reported having more experiences of discrimination compared to African American women. In terms of psychological distress, African American women were found to report more anxiety symptoms compared to African American men. The study did not find a

difference with regard to depressive symptoms. The results provided further evidence of race related stress's negative relationship to psychological well-being of African American men. Unfortunately, the study did not explore the various manifestations of race related stress. For example, it was unknown if there were gender differences as it relates to the type of discrimination and race related experienced.

A current study by Graham, West, Martinez, and Roemer (2016) provided more validation that experiencing racism is associated with anxiety symptoms. A study of 73 African Americans experience with racism and anxiety was examined. It was hypothesized that internalized racism would mediate the relationship between experiencing racism and anxiety symptoms. The results suggested that as African Americans experiencing more racism, they begin to internalize the negative attributions which have an effect on anxiety. The study was limited due to the sample size. In addition, the study included US-born African Americans and non-native African Americans. It was noted that Graham et al. (2016) results showed that US-born African Americans scored significantly higher on internalized racism and was consistent with previous studies (Hall & Carter, 2006; Ryan, Gee, & Laflamme, 2006).

A more recent meta-analysis by Pieterse, Todd, Neville, and Carter (2012) provided further evidence that race related stress is negatively associated with mental health among African Americans. The study was important as there has been debate about methodological and measurement issues related to research on race related stress and health (Kressin, Raymond, & Manze, 2008; Paradies, 2006). The meta-analysis conducted by Pieterse et al. (2012) included 66 studies which specifically focused on racism and mental health among African Americans. The data generated by the study provided convincing evidence that racial discrimination is associated with depression, anxiety, and somatization. Moreover, the study suggested that higher levels of



racial discrimination is related to higher levels of mental health distress. On the basis of this study, it seems fair to suggest that despite the methodological and measurement issues related to research on race related stress and mental health being conducted, African Americans' mental health is negatively impacted by race related stress.

### **Stigma Consciousness**

Stigma consciousness is the expectation that a member of a stigmatized group will be stereotyped regardless of their behavior (Pinel, 1999). The construct is closely related to stigma schematicity and stereotype threat. However, several differences exist between the constructs. Stigma schematicity holds the position that the stigmatized individuals internalize the beliefs (Bem, 1981; Levy, 2000; Markus, Crane, Bernstein, & Siladi, 1982). Conversely, stigma consciousness holds the assumption that individuals do not have to internalize the negative stereotype. Stigma consciousness also differs from stereotype threat in that the latter is more concerned with confirming the stereotype. Another related construct is social identity threat. Social identity threat is the idea that individuals are fearful or worried about their social category being devalued by others (Steele, Spencer, Aronson, 2002). Moreover, social identity threat is concerned about being placed in a situation in which they could be marginalized. While similar to stigma consciousness, it differs because a cue is not required for individuals to be more stigma conscious. Social identity threat is only activated when there are cues in the environment. In addition, stigma consciousness is a more global concept that is not situation specific.

Results from Pinel's (1999) initial validation study indicated that individuals high in stigma consciousness were more likely to perceive discrimination. In addition, individuals with high stigma consciousness avoided situations which the targeted group member could illustrate the fallacy in the stereotype. Although very few studies have been conducted using Pinel's

(1999) stigma consciousness construct with African American men, there is some research to support the construct's validity with other minority groups and members of other stigmatized groups.

Brown and Pinel (2003) conducted a study to determine if stigma consciousness would moderate the effect of gender stereotypes on math tests. The study had a sample of forty-nine women from an introductory psychology course. Participants were assigned to either high-threat group or low-threat group (i.e. control). The participants in the high-threat group were informed that women did not perform as well as men on the exam. The participants in the low-threat group were informed the test had been shown to not have any gender bias. The participants were given the stigma consciousness questionnaire prior to taking the math test. Results from the analysis yielded that women with higher stigma consciousness performed worse than women with low stigma consciousness. The implications of the findings support the notion that stigma consciousness makes individuals more sensitive to stereotype threat, a stressor and which subsequently affects performance. The study was limited by its sample size. Moreover, the study did not provide a breakdown of participants' race or ethnicity. Participant race or ethnicity is extremely important in studies investigating stereotype threat because individuals may be "double stigmatized" which would make it difficult to separate what stereotype was actually activated.

**Stigma Consciousness and Health.** Many of the earlier studies investigating stigma consciousness were strictly exploring the activation of stereotype threat and performance. Later studies have shifted and began focusing on the association between stigma consciousness and mental well-being, perceived prejudice, and prosocial attitudes (Goodman, 2000; Johnson, Ashburn-Nardo, Spicer, & Dovidio, 2008; Kaiser, Vick, & Major, 2006; Lewis et al., 2006).

Lewis et al. (2006) study examined the relation of stigma consciousness, social constraints, and general well-being in a lesbian population. The study included 105 self-identified lesbians of which 17% were African Americans, 6% were other minorities, and the remaining sample being Caucasian. The participants were administered the stigma consciousness questionnaire, social constraints questionnaire, and other scales to measure stress, mood, and physical symptoms. Stigma consciousness was shown to be a predictor of lesbian-related stress, negative mood, and self-reported physical symptoms through a series of hierarchical multiple regressions. The results of the study indicated that those high in stigma consciousness perceive more discrimination. Subsequently, perceived discrimination as a stressor could lead to poor health and well-being. Lewis et al. (2006) also postulated that stigma consciousness could cause stigmatized individuals to ruminate about being discriminated against. As a result, the rumination itself could produce stress.

Several studies have indicated that stigma and stereotype threat can activate the stress pathway and impact self-regulation (Derks, Inzlicht, & Kang, 2008; Inzlicht et al., 2006; Johns et al., 2008; Schmader, Johns, Forbes, 2008; Townsend et al., 2011). Many of these studies were conducted with females and other stigmatized group members. Nevertheless, there is belief that similar results would be found with African American men. Inzlicht et al. (2006) provided some evidence that results would be similar with African Americans. Inzlicht et al. (2006) investigated the relationship between stigma sensitivity and self-regulation among a sample of 38 African American college students. Students completed the race-based rejection sensitivity scale and self-efficacy for self-regulated learning scale during the first phase of the study. The results of the first phase indicated that those with higher sensitivity reported having lower self-regulation. The relation between stigma and actual stigma depletion was examined during the second phase.

Twenty-one African American students and 21 White students were randomly assigned to a stereotype threat condition or non-threatening situation in the second phase. Students were given the Stroop task, a measure of executive attention and working memory. Results indicated that African Americans in the threat condition took longer to complete the Stroop task than those in the non-threat condition. Moreover, there was no significant difference among white students in either condition. Therefore, it was concluded that stereotype threat and stigma could actually cause decreased self-regulation.

### **Executive Functions: Cognitive Flexibility**

Cognitive flexibility, a neurocognitive process, is an enigmatic construct as it has been studied from various perspectives and has various definitions (Dennis & Vander Wal, 2010; Kashdan et al., 2010). Within the literature, cognitive flexibility has been related to self-regulation, executive function, and fluid cognitive ability (Dennis et al., 2010; Flanagan et al., 2005; Kane et al., 2002; Kashdan et al., 2010; Williams et al., 2009;). It has also been hypothesized that cognitive flexibility is related to personality styles (DeYoung, Peterson, & Higgins, 2005; Kashdan et al., 2010; Williams et al., 2009; Williams, Suchy, & Kraybill, 2010). Ionescu (2012) attempted to provide a unifying framework of cognitive flexibility which focused on executive functions, conflict monitoring, and previous knowledge interaction with task demands and contextual cues.

The available evidence seems to suggest that cognitive flexibility is associated with the frontal lobe, specifically the prefrontal cortex (Alvarez & Emory, 2006; Barcelo & Knight, 2002; Goldberg, 2001; Gray, Chabris, & Braver, 2003; Stuss & Levine, 2002; and Stuss, Floden, Alexander, Levine, & Katz, 2001). The prefrontal cortex is divided into two hemispheres. The left prefrontal cortex is partially responsible for verbal information and detailed information

whereas the right prefrontal cortex is partially responsible for abstract information and reasoning (Suchy, 2009). Together, the right and left prefrontal cortex collectively work to process information and engage in goal directed behavior. The prefrontal cortex is connected through axons to various structures and regions of the brain such as hippocampus, basal ganglia, thalamus, amygdala and parietal lobe (Suchy, 2009; Cerqueira, Mailliet, Almeida, Jay, & Sousa, 2007). The exact nature of the relationship between the frontal lobes, cognitive flexibility, and executive functioning is not clearly understood. Alverez et al. (2006) meta-analytic review on executive function and frontal lobes showed mixed results as some studies provided evidence that individuals with frontal lobe lesions did not perform as well on psychological tests designed to assess executive functions whereas some studies indicated that those without frontal lobe damage also did not perform as well on the same psychological tests.

Under the assumption that executive functions take place in the prefrontal cortex, the anterior cingulated cortex is an equally important structure in the brain as it processes information and engages the prefrontal cortex to help reduce the conflict (May et al., 2007, Williams et al., 2009). Evidence also supports the role of the anterior cingulated cortex being associated with alerting the brain to conflicts derived from not meeting goals and mediating the stress response (Cerqueira et al., 2007; Mays et al., 2007). The prefrontal cortex's ability to regulate the limbic system and stressors is weakened if there is increased anterior cingulated cortex activation as the result of a stressor (e.g. racism and discrimination). As the result of being unable to deal with the stressor, the hypothalamic-pituitary-adrenal (HPA) axis is activated causing increased heart rate and blood pressure (Mays et al, 2007). The HPA axis has a significant role as it relates to the release of cortisol. The over secretion of cortisol is related to

decreased immune functioning, diabetes, and insulin resistance (Kiecolt-Glaser et al, 1995; Kiecolt-Glaser et al, 2002; Roberge et al.,2007).

**Cognitive Flexibility and Health.** Current research seems to validate the view that cognitive flexibility and fluid cognitive abilities are an important aspect in the regulation of stress and health (Alexander, Hillier, Smith, Tivarus, & Beversdorf, 2007; Kashdan et al., 2010; Stawski, Almeida, Lachman, Tun, & Rosnick, 2010; Stawski et al., 2011; Williams et al., 2009). Stawski et al (2010) conducted a study using a national sample of adults and measured level of stress and fluid cognitive abilities. The study measured stress by having participants record their daily stress in a journal. Fluid cognitive abilities were measured with a battery of tests that were related to fluid cognitive ability. The results of the study indicated that individuals with higher levels of fluid cognitive ability were exposed to higher levels of stress but their mood was not impacted as much as those with lower fluid cognitive ability. The study was severely limited by their design although the findings were consistent with previous studies. Participants completed the battery of test related to fluid cognitive ability over the phone. The relationship between examiner and test-taker has been shown to impact test performance (Canady, 1936; Sattler, 1970; Sattler, Hillix, & Neher, 1970). Completing a high stakes tests such as cognitive ability test over the phone is impersonal and could have an impact on the test-taker. There was a very small percentage of minorities in the study which decreased the generalizability of the study. Considering ethnic minorities' experience with daily stressors and unique stressors related to their ethnicity and race, the study should have made a more concerted effort to include minorities in the study.

Utsey, Lanier, Williams, Bolden, and Lee (2006) attempted to fill the gap in literature as it related to stress regulation, psychological well-being, and cognitive abilities in African

Americans. The study included 323 African Americans with an average age of 26. Participants completed measures related to social support, race-related stress, quality of life, spiritual well-being, and cognitive abilities. It was hypothesized that cognitive abilities and social support would moderate the relation between race-related stress and quality of life. The results of the study suggested that individuals with higher cognitive abilities along with increased social support were better at managing race-related stress which subsequently increased their quality of life. A major limitation of the study was the use of Wonderlic Personnel Test to measure cognitive abilities. The Wonderlic Personnel Test, a brief intelligence measure, is problematic for various reasons. The Wonderlic Personnel Test purports to measure different aspects of cognitive abilities such as verbal ability, numerical ability, and spatial reasoning. In addition, the Wonderlic Personnel Test is psychometrically loaded more on the crystallized intelligence factor than fluid cognitive abilities factor (Bell, Matthews, Lassiter, & Leverett, 2002; Matthews & Lassiter, 2007). Crystallized intelligence is heavily influenced by culture (Flanigan et al, 2011; Sternberg, 2004). Equally, cognitive ability tests are constructed in the dominant culture's (i.e., Euro-American) value systems and may not be culturally sensitive to other cultures (Helms, 1992). As a result, the Wonderlic Personnel Test may underestimate minorities' cognitive abilities. The use of the Wonderlic Personnel Test also is partially based on how many items are completed in a set-time. Helms (1992) noted that African Americans culturally are more concerned with correctly answering items than answering items fast. Thus, it is difficult to know if the Wonderlic Personnel Test measured actual ability or performance speed in African Americans.

Cognitive flexibility has also been shown to have a relation to an individual's ability to problem solve (Ionescu, 2012). Without being able to inhibit initial responses and contemplate

alternative strategies, individuals would not be able to problem solve. Whitfield, Allaire, and Wiggins (2004) specifically investigated the role of problem solving and health within an African American population. The study included a community sample of 207 African Americans with an average age of 66. The participants were given a measure of health and everyday problem solving skills. Results of the study concluded that lower levels of self-reported chronic illness and lower levels of self-reported health was significantly related to higher levels of problem solving skills.

There is preliminary evidence to suggest that cognitive flexibility moderates the relationship between minority stressors and mental health. In a study published by Brewster, Moradi, DeBlare, and Velez (2013), the relationship between bisexual prejudice and psychological well-being was examined in a sample of bisexual individuals. Although the study's primary focus was related to minority stress due to bisexuality, it does provide a framework and evidence that cognitive flexibility may moderate the deleterious effects of race related stress on African American men's health.

Overwhelmingly, the literature seems to suggest that lower levels of cognitive flexibility is related to poor health and higher stress levels. However, there is promising research which has shown that cognitive flexibility can be increased (Jaeggi, Buschkuhl, Jonides, & Perrig, 2008; Kubesch et al, 2009; Morrison & Chein, 2011; Sternberg, 2008). Kubesch et al (2009) conducted a study on school age children showed that aerobic exercises could improve cognitive functioning, specifically related to ability to resist distraction. Although the study did not show the long-term implications of exercise on cognitive ability, it does provide promising research into ways to increase cognitive ability and cognitive flexibility. Increasing cognitive flexibility



through exercise may be a useful approach if it is shown to moderate race related stress's relationship to health.

### **Summary of Literature Review**

The health of African American men is generally poorer when compared to other racial and ethnic groups in the United States (Brondolo et al.,2009; Farmer et al., 2005; Franks et al., 2006; Gorman et al., 2004; Mays et al.,2007; Paradies, 2006; Smedley et al., 2003; Williams et al., 2005; Williams et al., 2008). African American men have a shorter life expectancy rate and higher morbidity incidence rate of certain cancers, diabetes, and cardiovascular disease compared to White men (American Cancer Society, 2011; CDC, 2009; Rich, 2000). Research has produced a number of possible explanations such as access to health care, health behaviors, and other environmental factors. Yet, the most noteworthy factors are stress and race-related stress stemming from racism and discrimination. Stress results when an individual's resources are taxed and produces a physiological response. Based upon Lazarus's model, individuals appraise the situation or stressor as benign, threat, or challenge. Based upon how the individual appraises the stressor, autonomic response will follow. The autonomic response through the HPA axis causes the secretion of cortisol, norepinephrine, epinephrine, and other stress hormones. Subsequently, a person will experience increased heart rate, glucose, and physiological arousal. Being exposed to chronic stress can ultimately lead to poorer physical and mental health. McEwen (1998) proposed the concept of allostasis as a model for illustrating the effects of chronic stress and health.

Although stress can be produced from a variety of events, African Americans and other racial minorities experience a unique stressor as a result of racism. Racism manifests on cultural, institutional, or individual level. Moreover, it can be experienced by minorities on the different

levels. While there has been an abundance of research investigating racism, there have been some issues related as the best method to conceptualize racism (Brondolo, et al., 2009; Krieger, 1999; Harrell et al., 2003; Landrine et al., 1996; Paradies, 2006). Nevertheless, there appears to be a consensus that racism is multifaceted and is harmful to African Americans or non-Whites (Clark et al., 1999; Harrell et al., 2003; Harrell, 2000; Jones, 1996; Landrine et al., 1996, Mays et al., 2007; Paradies, 2006; Utsey et al., 1996).

Understanding racism is a multifaceted construct, it is also important for studies to acknowledge the ways racism interacts with an individual's ability to interpret and handle racial stereotypes and stigmatization. Pinel (1999) proposed stigma consciousness as a mechanism through which individuals process stereotypes and stigmatization. Moreover, stigma consciousness is related to an individual's ability to recognize discrimination as a result of their social status. Subsequently, individuals with a higher degree of stigma consciousness may perceive more racism and race-related stress. Previous research has suggested that there is a relation between belief in stereotypes, emotional regulation, and physiological arousal.

Although, the elimination of racism would lend itself to better health outcomes for African American men, it likely will take time to reach that goal. Thus, efforts have been made to explore moderators and mediators that can subsequently decrease racism's negative effect on individual's health (Clark, et al., 1999; Harrell et al., 2003; Paradies, 2006). Several moderators and mediators such as racial identity, spirituality, personality traits, self-esteem have shown to have an impact on the effects of racism and health (Bowen-Reid & Harrell, 2002; Mossakowski, 2003; Paradies, 2006; Sellers, Caldwell, Schmeelk-Cone & Zimmerman, 2003; Utsey et al., 2006).

Given there is an abundance of literature supporting the relation between race-related stress and health in African Americans, several gaps within the literature still exist. Majority of

the studies did not provide a clear operational definition of racism or race-related stress (Paradies, 2006). In addition, very few studies attempted to capture the various contexts through which racial minorities, specifically African Americans experience race-related stress. Last, since stress is a physiological and psychological process, studies should attempt to explore mechanisms which interact with physiological and psychological processes. Cognitive flexibility has been shown to be related to both physiological and psychological processes and has been shown to moderate the effects of stress (Kashdan et al., 2010). Yet, no specific research has investigated cognitive flexibility as a moderator of race-related stress in African American men. Cognitive flexibility offers the possibility of lowering the allostatic load in African Americans, subsequently leading to better immune functioning and health. This study seeks to examine the role of cognitive flexibility in moderating race-related stress and the subsequent impact on African American men's health. The results of the study will fill an existing gap in the literature and provide another area of exploration in the battle to decrease health disparities and increase the health of African American men.

## **CHAPTER III**

### **METHODS**

In this chapter, the methodology utilized for the present study is outlined. First, a rationale and description of the research design is discussed. Second, a description of the participants is provided. Next, a description of measurements along with psychometric properties are explained. Last, a description of the data collection procedure and data analysis plan is provided.

#### **Research Design**

A cross-sectional non-experimental design was utilized in order to understand the relationship among race-related stress, stigma consciousness, cognitive flexibility and health in African American men. This design allowed predictors and moderators of race-related stress and health in African American males to be examined. Harrell et al. (2003) posited that non-experimental designs were well suited to explore the relation between health and past experiences of discrimination. The design choice for examining the research questions in the present study provided several strengths over an experimental design. The most important strength of this design was the ability to use surveys to measure race-related stress from a historical perspective. According to McEwen (2000), it is the accumulative effects of stress that affect health. Thus, it would be important to measure stress from a historical perspective.

#### **Participants**

One hundred and thirty-five African American men from the Midwest consented to participating in the study. Two participants were excluded from the data analysis after they

indicated they were not born in the United States. The remaining 133 participants' data were analyzed for missing data. Of the remaining 133 participants, 13 participants had item data missing on the Health Perceptions Questionnaire utilized in the study. A Little's chi-square test was used to assess if the item data was missing completely at random (MCAR). Parent (2013) described data completely missing at random if it is "due to a factor completely unrelated to the missing data." A non-significant Little's chi-square test value ( $\chi^2(341)=332.52, p=.619$ ) indicated the missing data was missing completely at random. Individual mean imputation was used for missing data. No participant missed more than two data points on a subscale of the Health Perceptions Questionnaire. No data was missing for the other primary measures used in the study.

According to Aiken and West (1991) a sample size of 127 is required for statistical power of .80 to detect main effect of .15 and .20 for main effects plus interaction. The alpha level was set to .05. The sample size of 133 for this study was adequate based on Aiken et al., (1991) recommendations.

The final participant sample included 133 African American men with an average age of 25.42 (SD=8.7) and ranging in age from 18 to 64. In terms of marital status, 80.5% ( $n=107$ ) were single, 18.8% ( $n=25$ ) were married, and .8% ( $n=1$ ) were divorced. In terms of education, 54.9% ( $n=73$ ) had a high school education, 33.1% ( $n=44$ ) reported having some college, 6% ( $n=8$ ) reported having a four-year degree, and 6% ( $n=8$ ) reported having a graduate degree or higher.

## **Instruments**

**Index of Race Related Stress-Brief Version (IRRS-B).** The Index of Race-Related Stress-Brief (IRRS-B: Utsey, 1999). IRRS-B is a 22 item self-report multi-dimensional measure that assesses African Americans exposure and experience with different forms of racism. The

IRRS-B was derived from the 46 items contained on the full version of the Index of Race-Related Stress (Utsey et al., 1996). The IRRS-B measures the three levels of racism posited by Jones (1997) which are institutional, cultural, and individual. The Institutional Racism and Individual Racism subscales are comprised of 6 items each. The Cultural Racism subscale is comprised of 10 items. The IRRS-B also provides a higher order composite score for global racism which is calculated by converting the subscale scores to z scores and summing the three subscale z scores. Each item is scored on a 5-point Likert-type scale ranging from unaffected by the event to extremely upset by the event. Sample items included the following: “While shopping at a store, the salesperson thought that you couldn’t afford certain items” (individual racism); “You think you did not receive a promotion you deserved because you are Black” (institutional racism); and “You notice that crimes done by White people tend to be seen as not as bad, whereas the same crime done by a Black person is seen in a bad way and the Black person as an animal” (cultural).

The original Index of Race-Related Stress is based on the theoretical framework of Lazarus et al. (1984) cognitive appraisal model of stress and Jones (1997) tripartite model of racism. It was developed after conducting a focus group with African Americans. The themes and content discussed in the focus group was the basis of the item formation. A national sample of 377 men and women were used to validate the factors. An exploratory factor analysis and confirmatory factor analysis was conducted to reanalyze the original data in the development of the IRRS-B. Cultural, institutional, and individual racism were the only three original factors to emerge from the analysis after deleting items. The collective racism subscale was eliminated from the IRRS-B. The IRRS-B has good overall internal reliability. Cultural Racism, Individual Racism, and Institutional Racism subscales had a Cronbach’s alpha of .78, .78., and .69,

respectively. The original IRRS has shown to have a test-retest reliability ranging from .61 to .79 depending on the population (Utsey, 1998). The IRRS-B was also shown to have good criterion validity with the Racism and Life Experience Scales-Revised developed by Harrell (2000). The subscales of the instruments had a correlation range of .33 to .59 (Utsey, 1999). The average expected time to complete the IRRS-B is 5 to 15 minutes. The reading level of the IRRS-B is 9th grade. As a result of the higher reading level required for the IRRS-B, the survey was slightly modified to accommodate lower reading levels. Seaton (2003) created a modified version of the IRRS to be used with African American adolescents. The modified version was shown to have similar factor structure as the original. The coefficient alpha for scores from IRRS-B in this study was .75. The subscales alpha coefficient ranged from .65 to .73.

**Stigma Consciousness Questionnaire (SCQ).** The stigma consciousness questionnaire is a brief 10 item self-report measure of a targeted group of stereotypes perception of discrimination (SCQ: Pinel, 1999). More specifically, the SCQ measures the consciousness of stigma or stereotypes of one's group membership. Participants are asked to read each statement and rate each statement on a seven-point range from strongly disagree to strongly agree. The SCQ was designed to be modified to work with any discriminated group by adjusting the in-group and out-group names (Pinel, 1999). A sample item from the SCQ is "I almost never think about the fact that I am Black male when I interact with Whites." In this study, the coefficient alpha for the SCQ was .74. The total scale score of the SCQ was used in this study.

**The Comprehensive Trail Making Test (CTMT).** The CTMT is a measure consisting of five different trails with varying degrees of difficulty designed to measure cognitive flexibility, attention, and set-shifting deficits (CTMT: Reynolds, 2002). The first trail has individuals connect a sequence of numbers that are in circles. The trail is derived and similar to

the original Trail Making Test Trail A. The next 2 trails also have individuals draw line sequencing numbers in circles but has empty circles which serve as distracters (Reynolds, 2002). The fourth trail has individuals connect in sequence numbers in circles and number words in a rectangle box. The last trail has individuals connect a line of alternating numbers and letters in order is similar to Trail Making Test Trail B. Each trail is scored based on time to complete. Errors are not calculated into completion time but undoubtedly does have an impact of completion time (Reynolds, 2002). The completion time for each trail is calculated into a standardized t-score with a mean of 50 and standard deviation of 10. A standardized t-score is provided for each trail and a composite score which provides an overall score for all of the trails (Reynolds, 2002). The composite score of the CTMT was used to assess cognitive flexibility.

The CTMT has its origins with the original Trail Making Test. The original Trail Making Test was first introduced as part of the Army Individual Test Battery (Groth-Marnat, 2009). The Trail Making Test is also part of the Halstead-Reitan Neuropsychological Test Battery (Reitan & Wolfson, 1993). The original Trail Making Test has been shown to be more sensitive to cognitive flexibility (Kortte, Horner, & Windham, 2002). The original Trail Making Test does present with limitations especially as it relates to norms (Soukup, Ingram, Grady, & Schiess, 1998). The CTMT addressed many of those limitations by using a standardized sample that is stratified by age, geographic region, education, race, and gender (Reynolds, 2002). Additional demographic data such as family income and disability status was also collected. The standardized sample is comprised of 916 individuals ranging in age from 18 years old to 74 years old and has 715 Caucasians, 110 African Americans, 74 Hispanics, 18 Asians Americans, and 9 Native Americans (Reynolds, 2002). It was also noted that 90% of the standardized sample reported no disability (Reynolds, 2002). The CTMT Test has shown to have good reliability



ranging from .70 to .84. Smith et al. (2008) study indicated that had good divergent validity with psychopathology and verbal reasoning skills. A subsequent analysis also indicated that the CTMT was able to significantly differentiate between clinical and nonclinical individuals referred for a neuropsychological evaluation.

**Health Perception Questionnaire (HPQ).** The Health Perceptions Questionnaire is a 33 item self-report measure designed to assess individuals' perception of their past, current, and future health (Ware, 1976). Participants are asked to read and rate each statement on a scale ranging from 5 (*definitely true*) to 1 (*definitely false*). The HPQ yields six subscales: Current health, Prior health, Health Outlook, Resistance to Illness, Sickness Orientation. The scale also has 6 additional items which are related to attitudes toward seeking a doctor for help. Twenty-two of the 33 items comprise the General Health Rating Index (GHRI), a global score for general health. Sample items that comprise the GHRI are "I seem to get sick a little easier than other people" and "I have been feeling bad lately."

The HPQ is conceptually based on individuals' perception of their general health status. The scale does not differentiate between mental and physical health but does provide a global understanding of how individuals view their health. This is fitting for the study given it has been shown African American men do not differentiate between physical and mental health. The internal reliability of the subscales and GHRI have a Cronbach's alpha range from .53 to .89. The GHRI score has been shown to have a correlation of .46 with the Quality of Well-being scale (Read, Quinn, & Hoefler, 1987). The internal reliability for the HPQ was .80. The Cronbach's alpha for the GHRI subscale was .85 for this study.

**Personality Assessment Screener (PAS).** The Personality Assessment Screener is a 22 item broad based self-report screening measure designed to assess mental health issues (Morey,

1997). Items are answered using a 4-point scale ranging from false, sometimes true, mostly true, and very true. The PAS provides a total score and 10 subscale scores called element scores. The subscales are based on the content areas from the PAI 10 clinical scales (i.e. Negative Affect, Acting Out, Health Problems, Psychotic Features, Social Withdrawal, Hostile Control, Suicidal Thinking, Alienation, Alcohol Problem, and Anger Control). The element scores obtained from the PAS are probabilities that there would be a clinical elevation on the full version of the PAI if it were taken. According to the Personality Assessment Screener Professional Manual (1997), subscale scores can only be interpreted if the total PAS raw score is above 19. The total score of the PAS was used to assess mental health.

Reliability coefficients for the PAS Total were reported at .75 for the normative sample and .77 for Non-Whites. It was noted that the internal consistency of the clinical subscales ranged from .34 to .68 which was likely due to the brevity of the clinical subscales (Morey, 1997). The use of the PAS has been used in numerous studies as a measure of psychological and emotional functioning (Brotto, Basson, & Gehring, 2003; Brotto, Knudson, Inskip, Rhodes, & Erskine, 2010; Christensen, Girard, Benjamin, & Vidailhet, 2006; Gibbie, Mijch, & Hay, 2011; Hopwood & Morey, 2008). The use of the PAS has not been exclusively validated within African American men but has been shown to be a valid instrument in certain populations. The PAI was shown to have good convergent and divergent validity with African American women in a primary care setting (Porcerelli, Kurtz, Cogan, Markova, & Mickens, 2012). The use of the PAI has also been shown to be a valid brief self-report instrument for use with male and female veterans (Creech, Evardone, Braswell, & Hopwood, 2010). In nonclinical samples, the use of the PAS Social Withdrawn and Negative Affect subscale was shown to correlate with the depression subscale of the Holden Psychological Screening Instrument Inventory (Holden, Wasylkiw,

Starzyk, Edwards, & Book, 2001). Coefficient alpha for scores from the PAS total score was .70 in the current study.

**Demographics Questionnaire.** Participants completed a demographic questionnaire (see Appendix A) that covered pertinent background information such as date of birth, marital status, education level, occupation, and income level. Previous findings have noted that the type and amount of racism experienced differs among African Americans depending on socioeconomic status (Farmer et al., 2005; Jackson & Stewart, 2003; Maty, James, & Kaplan, 2010; Mays et al., 2007; Paradies, 2006; Sellers et al. 2003). The second section of the questionnaire asked participants basic questions about their health insurance status, prior visits to the emergency room, food servings, sleep behaviors, height and weight to calculate body mass index, and overall impressions of their health. The initial plan was to analyze the data from the second section to provide a more comprehensive description of the sample. However due to missing values from many items in the second section, it was excluded from the study.

## **Procedures**

Approval to conduct this study was obtained from Western Michigan University Human Subjects Institutional Review Board (see Appendix B). This study included a convenience sample of African Americans over the age 18. Participants who self-identified as an African American male were able to participate in the study. Although the term African American encompasses more than native born Blacks but also Caribbean Blacks and African immigrants, the decision was made to exclude non-native born Blacks. Prior studies have shown there are differences with regard to mental and physical health between native born African Americans, Caribbean Blacks, and African immigrants (Erving, 2011; Hall et al., 2006; Read & Emerson,

2005; Ryan et al., 2006; Williams et al., 2007a; Williams et al, 2007b; Seaton, Caldwell, Sellers & Jackson, 2010).

Participants were recruited from barbershops, community recreation centers, community health centers, and churches in the Midwest. Flyers with a telephone number and email were also distributed to barber shops, churches, and other venues where a diverse swath of African American men congregated. The flyers produced no inquiries into the study. All of the study's participants agreed to participate in the study after face to face contact inquiring if they would be interested in the study.

The data collection took place in a church, office setting and the homes of participants. Participants were given a brief background on the study and handed the informed consent form (See Appendix C). Participants were administered a pre-coded Comprehensive Trail Making Test after consent was given to participate in the study. Standardized instructions according to the CTMT professional manual were given. Participants were handed a pre-coded envelope which matched the pre-coded CTMT once the CTMT was completed. The envelope contained measures of race-related stress, stigma consciousness, general health, and mental health. Participants were instructed to place the surveys back into the envelope and seal it after the surveys were completed. Next, I debriefed the participants and provided the participants \$10 cash for their participation. The informed consent process and completion of study measures ranged from 30 minutes to 45 minutes.

### **Data Analysis**

The preliminary data analysis was conducted to check for missing data, outliers, and ensure parametric assumptions have been met. In addition, the preliminary analysis involved assessing linearity, independence of errors, homoscedasticity, and normality for regression

analyses. After the preliminary analysis, descriptive statistics such as means, standard deviations and bivariate correlations were conducted on all measures included in the study.

Two hierarchical multiple regressions analyses were utilized to test the hypotheses proposed by the study. The predictor and moderator variable were mean centered to avoid potential multicollinearity (Frazier, Tix, & Barron, 2004). The first and second hypothesis were tested with a hierarchical multiple regression on general health. Individual race related stress, institutional race-related stress, cultural race-related stress and stigma consciousness were loaded on the first step to test the first hypothesis. The second hypothesis was tested through examining the third step of the hierarchical multiple regression on perceived health. In order to test for moderation, the predictor variables from the first step along with the moderator main effect were entered on the second step. Specifically, individual race-related stress, institutional race-related stress, cultural race-related stress, and stigma consciousness were entered on the second step along with cognitive flexibility, the moderator variable. Next, the interaction terms between the predictor variables and moderator variable were entered on the third step. The interaction terms were individual race-related stress X cognitive flexibility, institutional race-related stress X cognitive flexibility, cultural race-related stress X cognitive flexibility, and stigma consciousness X cognitive flexibility. The adjusted  $R^2$ , B, and Beta were reported and analyzed for each step on the moderated multiple regressions conducted. Moderation is said to have occurred if there is a statistically significant change in  $R^2$  in the final step of the hierarchical regression and the interaction terms are statistically significant.

The third and fourth hypothesis was tested with a second hierarchical multiple regression analysis with mental health as the criterion variable. To test the third hypothesis, individual race related stress, institutional race-related stress, cultural race-related stress and stigma

consciousness were loaded as predictor variables on the first step of the hierarchical regression. The fourth hypothesis was tested by examining interaction terms on the third step of the hierarchical regression. Prior to entering the interaction terms on the third step, the predictor variables, individual race related stress, institutional race-related stress, cultural race-related stress and stigma consciousness were entered on the second step along with the cognitive flexibility, the moderator variable. The interaction terms entered on the third step were individual race-related stress X cognitive flexibility, institutional race-related stress X cognitive flexibility, cultural race-related stress X cognitive flexibility, and stigma consciousness X cognitive flexibility. The adjusted  $R^2$ , B, and Beta were reported and analyzed for each step on the moderated multiple regressions conducted.

## **CHAPTER IV**

### **RESULTS**

This chapter presents the key findings of this study. First, a preliminary analysis to assess for outliers, normality, and assumptions for multiple regressions are described. Second, descriptive statistics are reported including means, standard deviations, and bivariate correlations. Third, the main statistical analyses for each of the study's hypotheses is presented. Last, ancillary findings are presented.

#### **Preliminary Analysis**

Multivariate outliers were screened using Mahalanobis distance. Mahalanobis distance measures cases which are multivariate outliers based on a chi-square distribution. More specifically, it measures between scores and sample means for a case (Tabachnick & Fidell, 2013). The Mahalanobis distance scores results indicated no multivariate outliers based on a  $p < .001$ . Subsequently, all cases were retained for further analyses.

Normality of scores were assessed for all variables using skewness and kurtosis. Tabachnick et al., (2013) recommended a conservative value between -1.5 and +1.5 to determine skewness and kurtosis. However, Weston and Gore (2006) noted that an absolute value of 3.0 for skewness and absolute value of 10.0 for kurtosis were problematic for normality. Based on Weston et al., (2006) more liberal values for skewness and kurtosis, all of the variables had an absolute value for skewness lower than 2.19 and a kurtosis absolute value less than 2.81 with the exception of the mental health variable. The mental health variable had a value more extreme than 3.0 for skewness. The Shapiro-Wilk and Komogorov-Smirnov test also assessed normality

of residual distribution on the criterion variables' residuals. The mental health variable failed to reject the null hypothesis on both test. Thus normality could not be assumed. A log transformation conducted on mental health corrected the skew and kurtosis to acceptable levels below the absolute value of 3.0 for skewness and absolute value of 10.0. A follow up Shapiro-Wilk and Komogorov-Smirnov failed to approach statistical significance. Thus, it was concluded that the transformed data for mental health did not depart from normality. The transformed data for mental health was used in subsequent analyses with the exception of reported means and standard deviations.

Multiple regressions also require linearity, homoscedasticity, and absence of multicollinearity among the predictor variables. The assumption of linearity and homoscedasticity were determined by assessing the standardized residual scatter plotted against predicted values. The data did not appear to violate the assumptions of linearity or homoscedasticity based upon the data randomly scattered around the center. Multicollinearity of the predictor variables was assessed by evaluating the tolerance and VIF values. VIF scores were below 10 and a tolerance level of less than 1 but above .5 is considered acceptable (Tabachnick et al., 2013). Examination of the predictor variables were all within the acceptable range suggesting the assumption of multicollinearity had been met.

### **Descriptive Analyses**

The means and standard deviations from measures were calculated. Table 1 displays the study measures' means, standard deviations, and possible range of scores for the study variables. It is noted that untransformed mean for mental health were used for mean and stand deviation.

**Race-Related Stress.** The Index of Race Related Stress-Brief (IRRS-B) assesses three forms of racism through its subscales (Individual Race Related Stress, Institutional Race Related



Stress, and Cultural Race Related Stress). As shown on Table 1, means, standard deviations, and ranges of obtained scores are reported for individual subscales. The items responses ranged from 0 (“This event never happened to me.”) through 4 (“This event happened & I was extremely upset.”). The Individual Race Related Stress subscale lowest possible score is 0 and the maximum possible score was 24. The Individual Race Related Stress subscale scores ranged from 12 to 24 with a mean of 16.7 ( $SD=2.82$ ). The within item level mean for Individual Race Related Stress subscale was 2.46. Of note, approximately 90% of the participants responded with a 3 (this event happened and I was upset) or 4 (representing “this event happened and I was extremely upset) to the specific item: “Whites have stared at you as if you didn't belong in the same place with them whether it was a restaurant, store, or other place of business.” The Institutional Race Related Stress subscale’s lowest possible score is 0 and the maximum possible score was 24. The Institutional Race Related Stress subscale scores ranged from 6 to 22 with a mean score of 12.45 ( $SD=3.41$ ). The within item level mean for Institutional Race Related Stress subscale was 1.35 indicating that the event at least happened to them. The Cultural Race Related Stress subscale can produce a maximum score of 40. Scores on the Cultural Race Related Stress subscale ranged from 19 to 36, with a mean of 26.79 ( $SD=3.39$  and with item-level mean score of 2.66.

**Stigma Consciousness.** Stigma Consciousness Questionnaire (SCQ) scores ranged from 31 to 55 with a mean score of 41.65 ( $SD=4.58$ ). The possible range of score on the SCQ is 0 to 60. A score of 0 indicates that a participant denies worrying about stigmatization due to race and is not likely to change their behavior in cross racial interactions. The study’s sample reported an item level mean score of 4.16.

**Cognitive Flexibility.** The Comprehensive Trail Making Test (CTMT) was used to measure cognitive flexibility. The CTMT composite index, which is calculated by adding the standardized score of the five trails, has a range of 17T to 87T and a standardized mean of 50T (SD=10T). An CTMT Composite Index of 35T or lower indicates that a participant’s cognitive flexibility is mildly impaired. The CTMT Composite Index for this study was 47.08T (SD=8.37) which was similar to the mean listed in the Comprehensive Trial Making Test Professional Manual (Reynolds, 2002). However, the study’s distribution of CTMT scores differed. Table 2 displays the frequency and percentage of sample based on qualitative description.

Table 1  
*Descriptive Statistics for Study Variables (N = 133)*

Variables	<i>M</i>	<i>SD</i>	Range	$\alpha$
IRRS-B: Individual Racism	16.7	2.82	12 – 24	.73
IRRS-B: Institutional Racism	12.45	3.41	6 – 22	.65
IRRS-B: Cultural Racism	26.79	3.39	19 – 36	.71
IRRS-B: Global Racism	0.00	2.55	-.40 – 6.64	.75
Stigma Consciousness	41.65	4.58	31 – 55	.74
Cognitive Flexibility	47.08	8.37	20 – 70	.91
General Health	80.80	10.57	52.27– 98	.85
Mental Health	19.11	16.09	2.7 – 81.2	.70

**Perceived Health.** The General Health Rating Index (GHRI) was derived from the Health Perception Questionnaire. The maximum score is 100 which denotes a participant perceives their health as excellent. The lowest possible score is 0 which indicates that a participant views their health as poor. Table 1 outlines the GHRI mean, standard deviation, range, and internal reliability for this study. The GHRI item level mean score was 3.29.

Table 2  
*Qualitative Description of CTMT Composite scores (N = 133)*

Qualitative Description	<i>N</i>	% of sample	Composite Score Range
Severely impaired	4	3.0	< 30
Mildly to moderately impaired	3	2.3	30 – 35
Below average	30	22.6	36 – 42
Average	81	60.9	43 – 57
High Average	12	9.0	58 – 64
Superior	3	2.3	65– 70
Very superior	0	0.0	> 70

**Mental Health.** The Personality Assessment Screener total score was used to assess mental health problems. The mean and standard deviation are provided in Table 1. It was noted that the sample mean for this study was very similar to mean score for non-White (M=19.10, SD=8.42) as reported in the Personality Assessment Screener Professional Manual (Morey,

1997). Based upon the score of the PAS total score, different levels of clinical risk are provided. The results indicated that 59.4% (N=79) were low risk for clinical problems, 21.8% (N=29) were normal clinical risk for problems, 9.8% (N=13) were mild clinical risk for problems, 7.5% (N=10) were moderate risk for clinical problems, and 1.5% (N=2) were marked risk for clinical problems. According to Morey (1997), scores in the low range for clinical risk indicate emotional and behavioral problems are less than typical. In addition, scores in the low range could also imply positive management impression. Scores in the moderate and higher risk categories imply emotional and behavioral problems are more likely clinically significant.

Table 3  
*Bivariate Correlations Among Age and other Measurements (N=133)*

Measures	1	2	3	4	5	6	7	8	9
1. Individual Race Related Stress	–								
2. Institutional Race Related Stress	.61**	–							
3. Cultural Race Related Stress	.56**	.57**	–						
4. Global Race Related Stress	.85**	.86**	.84**	–					
5. Stigma Consciousness	.37**	.38**	.37**	.44**	–				
6. Cognitive Flexibility	-.26**	-.26**	-.33**	-.33**	-.26**	–			
7. General Health	-.32**	.37**	-.46**	-.45**	-.34**	.22*	–		
8. Mental Health	.30**	.31**	.34**	.37**	-.44**	-.39**	-.54**	–	
9. Age	.23**	.19*	.15	.21*	.10	-.02	-.05	-.01	–

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

**Bivariate Correlations.** Bivariate correlations were conducted on all study variables. Results of the bivariate correlations showed a significant relationship between all the study variables. Table 3 shows the correlations among all the study variables.

General health was shown to have a statistically significant relationship to individual race related stress, institutional race related stress, cultural race related stress, and stigma consciousness. Noteworthy was general health relationship to cultural race related stress produced the strongest correlation when compared to other forms of race related stress. Cognitive flexibility was shown to have a significant positive relationship with general health,  $r=.22, p= <.05$ . No statistically significant relationship was found between general health and age.

Mental health was also shown to have a statistically significant relationship to individual race related stress, institutional race related stress, cultural race related stress, and stigma consciousness. A statistically significant negative relationship between cognitive flexibility and mental health was found indicating the individuals with higher levels of cognitive flexibility reported less psychological distress. Age yielded a statistically non-significant correlation with mental health.

Noteworthy, age had a statistically significant bivariate relationship with individual race related stress and institutional race related stress. In addition, a positive statistically significant relationship between stigma consciousness and all forms of race related stress (i.e., individual race related stress, institutional race related stress, and cultural race related stress) were found. A negative statistically significant bivariate relationship was found between stigma consciousness and cognitive flexibility.

## **Hypothesis Testing**

The hypotheses were tested using two separate hierarchical multiple regression analyses on both general health and mental health. In both analyses, the order of variables and steps of the variables entered were the same. In the first step, the following variables were entered: individual race related stress, institutional race related stress, cultural race related stress and stigma consciousness. Cognitive flexibility, moderator variable, along with the main effects from the first step were entered in the second step. Next, the interaction terms, main effects, and moderator variable were entered in the third step. The interaction terms entered in the third step were Individual Race Related Stress X Cognitive Flexibility, Institutional Race Related Stress X Cognitive Flexibility, Cultural Race Related Stress X Cognitive Flexibility, and Stigma Consciousness X Cognitive Flexibility.

## **Restatement of Research Question, Hypotheses, and Results of Statistical Analyses**

*Research Question 1:* Does race-related stress and stigma consciousness predict African American men's perceived health?

*Hypothesis 1:* It is expected that African American men who report collectively higher levels of race-related stress and stigma consciousness will have lower levels of perceived health.

To examine the first hypothesis a hierarchical multiple regression was performed utilizing health as the criterion and individual race related stress, institutional race related stress, cultural race related stress, and stigma consciousness as predictors in the first step of the hierarchical multiple regression to determine if African American men's health could be predicated as a function various forms of race related stress. The results of the hierarchical multiple regression are presented in Table 4.

The results indicated individual race related stress, institutional race related stress, cultural race related stress, and stigma consciousness were significant predictors of African American men's health ( $F(4,128) = 10.90, p < .001$ ). As shown in Table 4, cultural race related stress ( $\beta = -.34, p < .01$ ) and stigma consciousness ( $\beta = -.17, p < .05$ ) were significant predictors of self-reported health. Based on the results from the first step of the hierarchical multiple regression, the hypothesis was supported.

*Research Question 2:* Does cognitive flexibility moderate the relationship between stigma consciousness, race-related stress, and African American men's perceived health?

*Hypothesis 2:* It is expected that cognitive flexibility will moderate race related stress and stigma consciousness's relationship to health among African American men.

The second hypothesis was tested by examining the second and third step of the hierarchical multiple regression with health as the criterion variable. Cognitive flexibility, the moderator variable along with main effects were examined on second step. The interaction terms, main effects, and moderator variable were examined on the third step to determine if moderation has occurred. The results of the hierarchical multiple regression are presented in 4.

The hierarchical regression analysis indicated that the overall model was significantly related to general health  $F(9, 123) = 6.22, p < .001$ . The addition of cognitive flexibility in the second step did not significantly predict an increase of variance from step one and step two,  $\Delta F(1, 127) = .26, p = .61; \Delta R^2 = .002$ . The interaction terms entered on the third step did significantly increase the  $R^2$  from step two to step three,  $\Delta F(4, 123) = 2.57, p < .05; \Delta R^2 = .06$ . Thus, it can be stated that the interaction terms entered on the third step improved the model. Despite the interaction terms improving the overall model, the individual interaction terms were not statistically significant at the .05 level. Thus, an interaction of cognitive flexibility on the

individual effects of Race Related Stress could not be confirmed. Moderation is said to occurred if there is a significant change in  $R^2$  from the penultimate step and last step and the interaction terms are significant (Baron & Kenny, 1986). Based on the results of the last step of the hierarchical multiple regression, the hypothesis was not supported.

Table 4  
*Hierarchical Regression Analyses Examining Effects of Race-Related Stress, Stigma Consciousness, and Cognitive Flexibility on Health Among African American Men*

Predictor	<i>B</i>	<i>SE B</i>	$\beta$	$R^2$	$\Delta R^2$
Step 1					
Individual Race Related Stress	.02	.36	.01		
Institutional Race Related stress	-.31	.30	-.11		
Cultural Race Related Stress	-.99	.29	-.34**		
Stigma Consciousness	-.38	.18	-.18*	.25**	.25
Step 2					
Individual Race Related Stress	.03	.36	.01		
Institutional Race Related stress	-.30	.30	-.11		
Cultural Race Related Stress	-.96	.30	-.33**		
Stigma Consciousness	-.37	.19	-.17*		
Cog. Flexibility	.06	.13	.04	.26	.002
Step 3					
Individual Race Related Stress	-.25	.38	-.07		
Institutional Race Related stress	-.25	.30	-.09		
Cultural Race Related Stress	-.95	.30	-.33*		
Stigma Consciousness	-.35	.18	-.16		
Cog. Flexibility	-.01	.13	-.01		
Individual Race Related Stress X Cog. Flexibility	-.09	.06	-.17		
Institutional Race Related Stress X Cog. Flexibility	-.00	.00	-.03		
Cultural Race Related Stress X Cog. Flexibility	-.04	.05	-.10		
Stigma conscious X Cog. Flexibility	.04	.03	.15	.31**	.06*

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



The decision was made to drop individual race related stress, institutional race related stress, and cultural race related stress from hierarchical regression analysis to determine if a better predictor model could be produced as it related to health. Global race related stress, a composite score comprised of individual, institutional, and cultural race related stress, was added to the model along with stigma consciousness and cognitive flexibility. The results from the second regression on general health are presented in Table 5. The overall new model was significant,  $R^2 = .309$ ,  $F(5, 127) = 11.38$ ,  $p < .001$ . In the first step, global race related stress and stigma conscious were entered. These variables accounted for a significant amount of variance in health,  $R^2 = .226$ ,  $F(2, 130) = 19.02$ ,  $p < .001$ . The results also indicated that Race Related Stress ( $\beta = -1.43$ ,  $p < .001$ ) and Stigma Consciousness ( $\beta = -.38$ ,  $p < .05$ ) uniquely contributed to the model. Global race related stress, race stigma consciousness, and cognitive flexibility were entered on the second step as predictor and moderator main effects. Introducing the cognitive flexibility at the second step did not significantly add to the amount of variance in the criterion accounted for. In the final step of the regression analysis, interaction terms were entered. The product terms were Global Race Related Stress X Cognitive Flexibility and Stigma Consciousness X Cognitive Flexibility. The interaction terms accounted for a significant increase in the amount of variance in health among African American men,  $\Delta R^2 = .08$ ,  $\Delta F(2, 127) = 7.36$ ,  $p < .001$ . It was concluded that the interaction terms entered on the third step improved the model and the moderator variable is said to moderate (Baron et al., 1986). The results of the follow up hierarchical multiple regression provided partial support for the second hypothesis.

The significant interactions were plotted by using the cut-off of one standard deviation below and above the mean for low and high cognitive flexibility scores as recommended by Aiken and West (1991). The plotted interactions are shown in Figure 1 and 2.

A visual inspection of the interaction terms in Figure 1 indicated a disordinal interaction with global race related stress and suggested that cognitive flexibility moderates the relationship between race related stress and general health. Furthermore, it indicated that individuals with higher levels of cognitive flexibility and experiencing low levels of race related stress reported better general health. However, as individuals with higher levels of cognitive flexibility experienced higher levels of race related stress, their general health considerably decreased. On the other hand, individuals with lower levels of cognitive flexibility reporting of health did not substantially decrease as they began to experience increased levels of race related stress.

Implications and possible reasons for the disordinal interaction is discussed in Chapter 5.

Table 5

*Hierarchical Multiple Regression Analysis of Race-Related Stress, Stigma Consciousness, and Cognitive Flexibility in Relation to Health among African American Men*

Predictor	<i>B</i>	<i>SE B</i>	$\beta$	<i>R</i> <sup>2</sup>	$\Delta R^2$
Step 1					
Race Related Stress	-1.43	.33	-.37**		
Stigma Consciousness	-.38	.18	-.18*	.23**	.23
Step 2					
Race Related Stress	-1.37	.34	-.36**		
Stigma Consciousness	-.36	.19	-.17		
Cog. Flexibility	.08	.13	.06	.23	.00
Step 3					
Race Related Stress	-1.57	.33	-.41**		
Stigma Consciousness	-.35	.18	-.17*		
Cog. Flexibility	.03	.13	.02		
Race Related Stress x Cog. Flexibility	-.17	.04	-.30**		
Stigma Consciousness x Cog. Flexibility	.05	.03	.17*	.31**	.08*

Note. \**p* < .05. \*\**p* < .01.

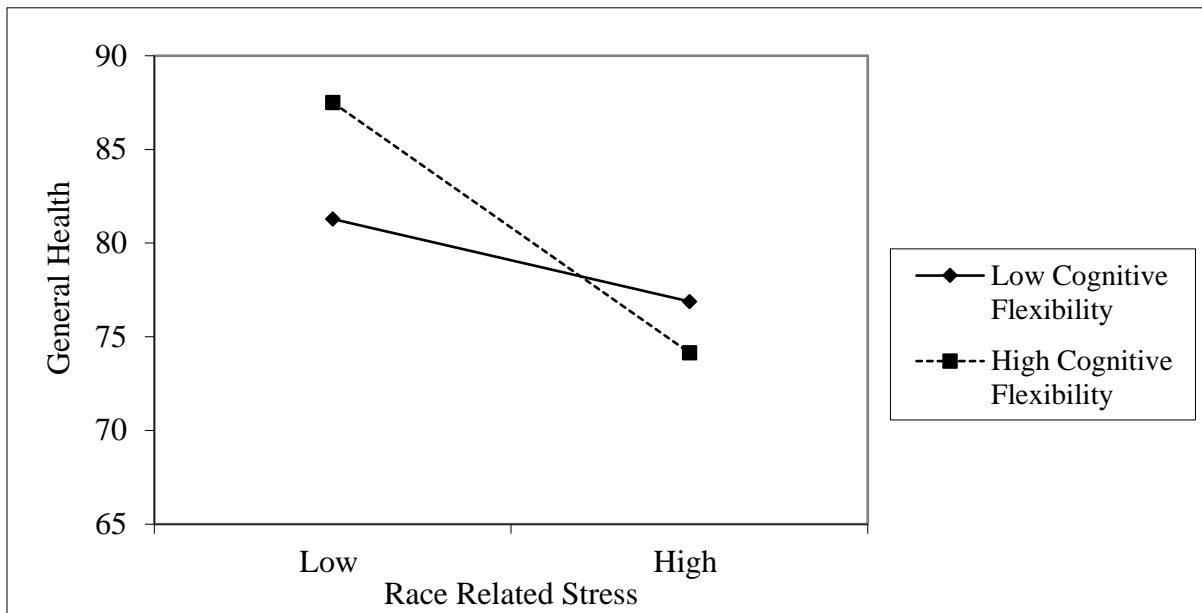


Figure 1. Interaction between Race Related Stress and General Health

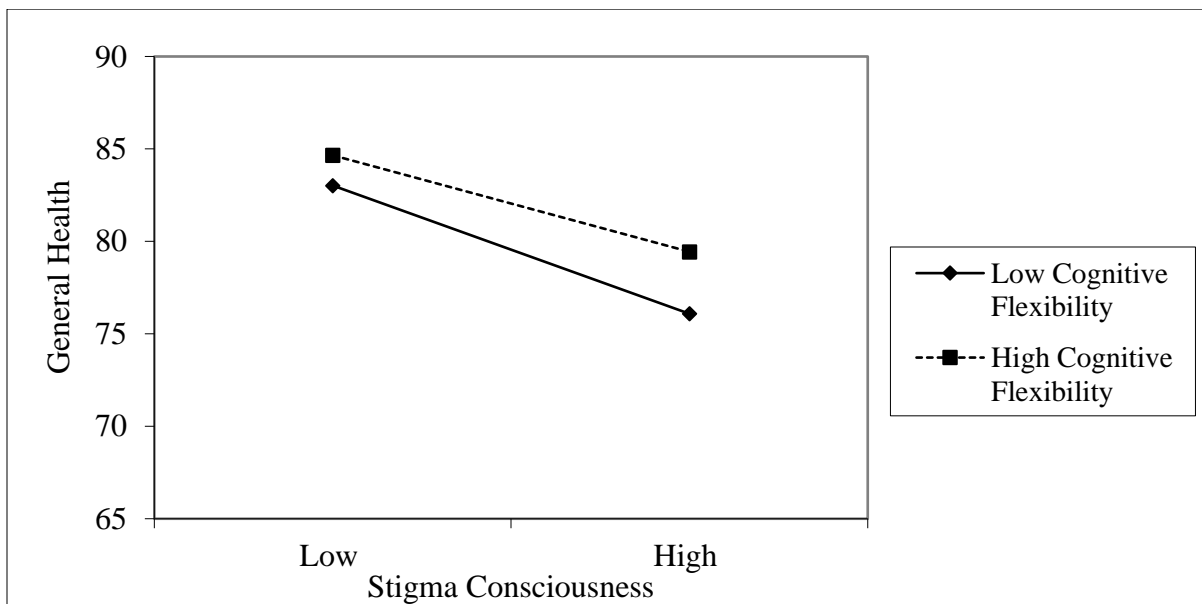


Figure 2. Interaction between Stigma Consciousness and General Health

As depicted in Figure 2, an ordinal interaction with stigma consciousness was found which suggested that as stigma consciousness increased in individuals with higher levels of cognitive flexibility's, their general health decreased. A similar pattern was found with

individuals with individuals with lower levels of cognitive flexibility except their general health was lower than those with high levels of cognitive flexibility.

*Research Question 3:* Does race-related stress and stigma consciousness predict African American men's mental health?

*Hypothesis 3:* It is expected that African American men who report higher race related stress and stigma consciousness will report decreased mental health.

A hierarchical multiple regression was conducted with mental health as the criterion and individual race related stress, institutional race related stress cultural race related stress, and stigma consciousness as predictors to test the third hypothesis that increased mental health problems are a function of race related stress and stigma consciousness. Specifically, the first step of the hierarchical multiple regression was examined. The results of the hierarchical multiple regression are reported in Table 6.

The results from the first step of the hierarchical multiple regression on mental health indicated that individual race related stress, institutional race related Stress, cultural race related stress, and stigma consciousness significantly predicted African American men's mental health  $F(4, 128) = 9.96, p < .001$ . It was noted that only stigma consciousness ( $\beta = .64, p < .001$ ) was the only predictor variable to uniquely contribute to the variance of mental health. Based on the results from the first step of the hierarchical multiple regression on mental health, the hypothesis individual race related stress, institutional race related stress, cultural race related stress, and stigma consciousness negatively predicted African American men's mental health. Thus, it can be said the hypothesis was supported.

Table 6

*Moderation Effect of Cognitive Flexibility on the Relationship between Race-Related Stress, Stigma Consciousness and Mental Health*

Predictor	<i>B</i>	<i>SE B</i>	$\beta$	<i>R</i> <sup>2</sup>	$\Delta R^2$
Step 1					
Individual Race Related Stress	.14	.32	.05		
Institutional Race Related Stress	.15	.26	.06		
Cultural Race Related Stress	.38	.25	.15		
Stigma Consciousness	.65	.16	.35**	.24*	.24
Step 2					
Individual Race Related Stress	.10	.31	.03		
Institutional Race Related Stress	.13	.26	.05		
Cultural Race Related Stress	.24	.25	.09		
Stigma consciousness	.58	.16	.31**		
Cog. Flex	-.33	.11	-.25**	.29**	.06
Step 3					
Individual Race Related Stress	.27	.31	.09		
Institutional Race Related Stress	.01	.26	.00		
Cultural Race Related Stress	.30	.25	.12		
Stigma Consciousness	.60	.16	.32**		
Cog. Flex	-.23	.11	-.18*		
Individual Race Related Stress x Cog. Flex	.05	.05	.11		
Institutional Race Related Stress x Cog. Flex	.00	.00	.10		
Cultural Race Related Stress x Cog. Flex	.03	.04	.07		
Stigma Race Related Stress x Cog. Flex	-.05	.02	-.19*	.35**	.05*

Note. \**p* < .05. \*\**p* < .01., Cog. Flex=Cognitive Flexibility

*Research Question 4:* Does cognitive flexibility moderate stigma consciousness and race-related stress's relationship to African American men's mental health?

*Hypothesis 4:* It is expected that cognitive flexibility will decrease the impact of race related stress and stigma consciousness on African American men's mental health.

The fourth hypothesis was tested by examining the second and third step of the hierarchical multiple regression with mental health as the criterion variable. The hierarchical regression on mental health yielded an overall significant model  $F(9, 123) = 7.20, p < .001$ . Results from the hierarchical multiple regression on mental health are presented in Table 6.

Introducing cognitive flexibility, moderator variable, on the second step, explained an additional 5.5% of variation in Mental Health which was a significant increase in  $\Delta R^2$  from step one to step two,  $\Delta F(1, 127) = 9.86, p < .01$ . The results from the final step of the regression analysis indicate the interaction terms were entered at the third and last step improved the overall model,  $\Delta R^2$  from step two to step three,  $\Delta F(4, 123) = 2.48, p < .05$ ;  $R^2$  change = .053. As reported in Table 6, the interaction term of stigma consciousness x cognitive flexibility was the only significant interaction term. Based on the results of the hierarchical multiple regression analysis, the hypothesis that cognitive flexibility would moderate race related stress and stigma consciousness relationship to mental health was supported.

Aiken et al. (1991) recommended a visual inspection of significant interactions which should be plotted by using the cut-off of one standard deviation below and above the mean for low and high moderator scores. An inspection of the Stigma Consciousness x Cognitive Flexibility interaction term produced an ordinal interaction as shown in Figure 3. The plot suggests that stigma consciousness impact on health is dependent on degree of cognitive flexibility. Overall, mental health problems are lower in individuals who reported lower levels of stigma consciousness compared to those who reported high levels of stigma consciousness. Yet, for individuals with high levels of stigma consciousness, increased cognitive flexibility seems to have a substantial effect on individuals' mental health problems whereas they report less.

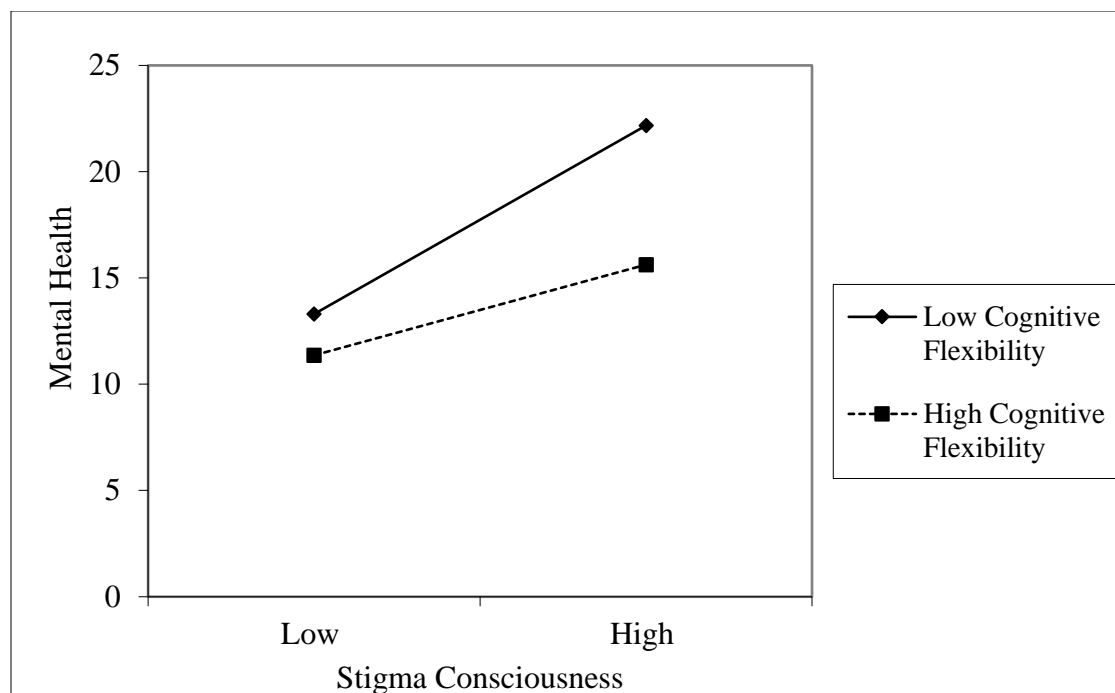


Figure 3. Interaction between Stigma Consciousness and Mental Health

### Summary of Results

The results suggest a partial support of the hypotheses in the study. Descriptive analyses and a series of hierarchical multiple regressions were used to test the hypotheses. It was hypothesized that more exposure to race related stress and greater stigma consciousness would negatively predict health and positively predict mental health problems. In regards to Hypothesis 1, I found increased exposure to individual race related stress, institutional race related stress, cultural race related stress and stigma consciousness negatively predicted the health of African Americans. However, it is important to note that only stigma consciousness was a unique predictor of health. The other forms of race related stress were only predicted the health collectively. This was supported in the first hierarchical regression analysis and subsequent hierarchical regression analysis which used global race related stress as a predictor variable.

In regards to Hypothesis 2, I did not initially find support for cognitive flexibility moderating the distinct and various forms of race related stress’s relationship to health. Cognitive

flexibility failed to moderate the individual effects of race related stress. The results indicate that only stigma consciousness's relationship to health was moderated by cognitive flexibility. In a subsequent regression analysis, I found support for cognitive flexibility moderating race related stress but only after examining the combined effects of individual race related stress, institutional race related stress, and cultural race related stress. However, the disordinal interaction was not predicted. A more detail discussion on possible reasons for the disordinal interaction is discussed in Chapter 5

The third hypothesis predicted that there would be a positive relationship between individual race related stress, institutional race related stress, cultural race related stress and stigma consciousness to mental health problems. Bivariate analysis found that a positive relationship exist. The hierarchical regression analysis also provided support that greater exposure to race related stress along with increased stigma consciousness predicted an increase in mental health problems. The regression analysis also found that only stigma consciousness was a unique predictor.

In regards to the fourth hypothesis, it was partially supported. I expected that cognitive flexibility would moderate race related stress's relationship to mental health problems. Contrary to the expected result, cognitive flexibility failed to moderate race related stress's relationship to health. However, stigma consciousness was moderated by cognitive flexibility. The interaction was as expected.



## **CHAPTER V**

### **DISCUSSION**

This chapter is a discussion of the key findings from the study. In addition, implications from the present study are discussed. This section also provides limitations of the study and recommendation for future studies.

#### **Key Findings**

The nefarious effects of race related stress on African American's health have been well documented in the literature and research. However, most of these studies were not specific to African American men and many were conducted as a secondary data analysis. In addition, many of the studies did not attempt to capture the multidimensional aspect of racism. The current study is unique in that it examined various dimensions of race related stress association to African American men's health. More specifically, I was interested in the direct impact of individual racism, cultural racism, institutional racism, and the unique and collective contribution of stigma consciousness to African American men's health. In addition, the current study focused on ways to buffer the effects of race related stress on health. Previous research on moderator and mediator variables have primarily focused on racial identity, coping style, and social support (Paradies, 2006). This study sought to understand how neurocognitive processes, specifically cognitive flexibility, interacted with race-related stress to lessen its impact on African American men's health.

The current study's findings supported the hypothesis that as stress from individual race related stress, institutional race related stress, and cultural race related increased, African

American men's health would decrease. Results from the regression analysis also found that stigma consciousness was a unique predictor of health in the study's participants. This suggests that the awareness of being a member of a stigmatized group negatively influences African American men's health. A closer look at the data also revealed that cultural race related stress uniquely contributed to the prediction of African American's men's health. It is plausible that institutional race related stress and individual race related stress were not unique predictors because of measurement issues and age of the participants.

I am not alone in my view that measuring race related stress is difficult (Krieger, 1999; Harrell, 2000; Utsey, 1998). Notwithstanding, the Index of Race Related Stress-Brief had several items which may not have been applicable to younger participants. For instance, the measure had items related to being passed over for important projects at their place of employment due to their racial status. It is plausible that many of the younger participants in the study were early in their careers and the opportunity for advancement is limited. The measure also included an item about being denied an apartment due to their racial status as a form of institutional racism. Thus, the frequency of such events happening to the younger participants in this sample may be relatively low. According to Mather (2011) approximately 31% of young African American men live at home with their parents.

As previously noted, an overwhelming majority of the sample was below the age of 30. This is important as to why institutional racism was not uniquely predictive of African American's men's health. The findings supported that there was a significant association between older age and increased institutional race related stress. The notion that older African Americans may experience higher levels of institutional racism is consistent with previous research. Utsey et al., (2002) examined race related stress and quality of wellbeing in a sample

of older African Americans. Findings from Utsey et al. (2002) study revealed that only institutional racism was a significant predictor of quality of life. Utsey et al. (2002) posited that older African American's have a "historical reality of Jim Crow segregation in the South and de facto segregation in the North" (p.231). It is believed that because of those experiences, they are more likely to recognize institutional racism and react to it.

The study also provided preliminary evidence to support that stigma consciousness can act as a race related stressor. The basic premise of Pinel (1999) theory on stigma consciousness is that individuals from stigmatized groups have varying degrees of awareness of stigmatization and behaviorally respond based on their awareness level when interacting with a member from an outgroup. On that ground, I hypothesized that stigma consciousness is an additional form of race related stress. This the first known study to exclusively focus on race stigma consciousness in African American men. In the current study, African American men reported being more stigma consciousness were also likely to have decreased levels of health. The findings were noteworthy because it provides evidence that just being aware or conscious of one's racialized status and holding the belief that one could be racially stereotyped can act as a stressor. James Baldwin, activist and novelist, stated, "to be Black and conscious in America is to be in a constant state of rage". It is theorized the constant "rage" and being conscious of one's place in America due to race acts as a chronic stressor thereby increasing the allostatic load factor which is associated with poorer health. The findings were consistent with a previous study by Clark, Benkert, and Flack (2006). Clark et al. (2006) examined gender and racism-related vigilance relationship to large arterial elasticity in African American youth. Arterial elasticity is associated with myocardial functioning and hypertension. In addition, arterial elasticity can be affected by

stress. Based on the results of this study and previous findings, I deduce that solely being aware of the potential racial stigmatization can affect African American men's overall health.

The findings from this study suggests that race related stress and stigma consciousness are associated with mental health functioning. The results were not surprising given that the relationship between race related stress and mental health issues are well documented (Utsey, 1997; Pieterse et al., 2012; Sellers et al. 2009; Sellers et al., 2003). However, it was unexpected that individual race related stress, institutional race related stress, and cultural race related stress did not uniquely predict mental health functioning. The results indicated that only the collective effects of race related stress was able to predict mental health issues in the sample of African American men. It is plausible that the various forms of race related stress may need to interact together to negatively affect African American men's mental health. In theory, it is not one singular racist encounter that will cause anxiety or mental health problems but the buildup of multiple racist encounters over a period of time. It can also be surmised that after having multiple racist encounters, individuals would begin to dwell more on negative experiences which might cause an increase in mental health problems. Provided that individual race related stress, institutional race related stress, and cultural race related stress were measured for intensity and exposure rate, a clearer understanding of how they interact together to predict mental health in African American men could be possible. Krieger (1999) noted there is some concern about the accuracy of measuring race related stress as it is difficult to assess past racist encounters for exposure, intensity, and frequency. This partly stems from individuals being asked to recall the event and attach emotional intensity to an event which may have occurred weeks ago. It is probable that individuals' emotional intensity from the event decreased.

The current study did provide a unique finding that revealed stigma consciousness was a unique predictor of mental health problems. Similar findings were found in study examining sexuality stigma consciousness relationship to depressive symptoms (Lewis et al., 2006). Although Lewis et al., (2006) study focused on stigmatization from homosexuality and bisexuality, the current study and Lewis et al. (2006) provide evidence that stigma consciousness is a predictor of mental health. The reason for stigma consciousness being the only unique predictor of mental health is debatable. It is my belief that stigma consciousness acts as anticipatory stressor and therefore it is more likely to manifest itself as worrying when assessing for mental health issues. Undoubtedly, increased worrying would lead to an increase in mental health issues. Utsey et al. (2012) posited that “prolonged activation of race-related stress increases the likelihood of negative psychological and physical health outcomes for African Americans” (p.534). This also illuminates another issue as it relates to measurement of mental health. It is conceivable that African American men who have higher stigma consciousness may present as clinically anxious on psychological measures of anxiety. Anxiety is unrealistic worry or concern that is out of proportion of to the actual event/situation. The question is how does one determine what is unrealistic. Events in Baltimore, Ferguson, and Chicago where unarmed African American men have been killed by police officers has provided some evidence that it may be wise to dwell on how one’s behavior may be interpreted in cross-racial police interactions. From this perspective, stigma consciousness may serve as a protective factor in one instance and a stressor in another instance. Future research should investigate the mechanism and manner which stigma consciousness acts as a stressor and protective factor.

Pieterse et al. (2012) meta-analytic review noted that perceived racism was significantly related to depression, anxiety, and somatization. Unfortunately, a closer inspection of the clinical

problems was not possible in this study. A closer look at the data indicates that only 9% of the individuals in the study's sample reported having a moderate or higher risk level for clinical problems as detected by the Personality Assessment Screener. Although, the Personality Assessment Screener is a brief broad band screener of mental health problems, interpretation of individual PAS elements for the subscales should only be done in cases which the PAS Total raw score is greater than 19 (Morey, 1997). Without reading too much into the data, it is noteworthy that the Negative Affect and Acting Out subscales had the highest mean elevation out of the 10 subscales. The Negative Affect subscale is closely aligned with symptoms related to depressive disorders and anxiety disorders. It is theorized that the reason for the Acting Out subscale may have been elevated due to responses on one item which pertained to spending money too easily. As with any measure of mental health problems, it is important to consider cultural issues and the manifestation of mental health issues.

The data from this study suggests that cognitive flexibility interacts with combined effects of race related stress and stigma consciousness to buffer its effects on general health and mental health problems. A similar finding exploring the relationship between minority stress, stigmatization, and cognitive flexibility was found in bisexual individuals (Brewster, 2011). Results from the study showed that cognitive flexibility did moderate stigma consciousness relationship to mental health despite no interaction effect being found when examining the individual effects of individual race related stress, institutional race related stress, and cultural race related stress relationship to mental health or general health. It is possible that African American men high in cognitive flexibility and high stigma consciousness may have the ability to more effectively navigate environments where they are acutely aware of their race. Given what is known about cognitive flexibility, it is likely that individuals who have lower cognitive

flexibility ruminate more on the stigma associated with being African American which may lead to increased mental health problems.

A follow-up analysis explored the cumulative effects of race related stress and stigma consciousness's relationship to health. The cumulative effects of race related stress was examined by combining individual race related stress, institutional race related stress, and cultural race related stress into a global composite score of race related stress. The results indicated that as race related stress increased, the health of individuals with higher levels of cognitive flexibility diminished more than those with lower cognitive flexibility. The results were contrary to the original hypothesis. A plausible explanation for the result is individuals with higher levels of cognitive flexibility may process and focus on subtler forms of racism that may not be detected by those with lower levels of cognitive flexibility. Whereas individuals with lower levels of cognitive flexibility may be oblivious to racially ambiguous situations; individuals with higher levels of cognitive flexibility may be more likely to view alternative explanations for the behaviors exhibited in the racially ambiguous situation. Moreover, persons with higher cognitive flexibility may not view each negative racial encounter as a onetime event but as a larger pattern of events which they feel denigrated. Accordingly, persons with high cognitive flexibility may start to feel overwhelmed by experiencing all the racist encounters as one larger event. Subsequently, their stress load increases which can have a direct impact their health. Another possible explanation for the results is cognitive flexibility may lose its ability to buffer the negative effects when African American men have high levels of race related stress. It is plausible that high levels of race related stress can overwhelm one's ability to manage the stressors. Thus, the outcomes between the high and low cognitive flexibility groups would be similar because the inoculating power of cognitive flexibility is lost at high levels of race related

stress. Future studies should examine the exact nature of cognitive flexibility's ability to shield against the effects of race related stress. For example, an analogue study that examines how cognitive flexibility interact to moderate race related stress and health would provide more clarity and contribute to our understanding of race related stress research.

### **Study Limitations**

Despite the study contributing to the understanding of race-related stress and stigma consciousness's relationship to the health of African American men, the study contained several limitations related to the sample, measurement issues, and design. To begin, the participants were not reflective of the African American community of men. Thus, the generalizability of the findings is severely limited. Approximately 70% of the participants were between the age of 18 and 33 years old. It is possible that different results would be found in older African American men. It is plausible that older African American men may perceive racism different. It is also possible that older African American men may cope with racism different than younger African American men. Thus, they have different coping mechanism to deal with race related stress. Another limitation due to the sample was 80% of the participants were single. It is conceivable that married African American men, may have additional emotional support from their spouse which allows them to better cope with race related stress. There is overwhelming evidence that social support can moderate the relationship between stress and health (Cohen & Wills, 1985; Heard, Whitfield, Edwards, Bruce, & Beech, 2011; Uchino, John, & Kiecolt-Glaser, 1996). Clark (2003) found that perceived racism and social support interacted to affect the blood pressure of African American men in a controlled laboratory setting. Utsey et al., (2006) provided further evidence that social support interacts with cognitive ability to moderate race related stress's relationship to quality of life and individuals with high cognitive ability may be



better at utilizing their social support to buffer against the negative effects of race related stress. Given the small number of married African American men in the sample, no analysis was able to be conducted to follow up on this idea. The study attempted to account for socioeconomic status differences but socioeconomic status data was missing from the demographics questionnaire. Thus, no conclusions could be drawn about the sample's socioeconomic status. Socioeconomic status could be very important when understanding the effects of race related stress. African American men may experience and notice different types of racism depending on their socioeconomic status. For instance, an upper middle class professional African American may be more likely to notice institutional racism compared to low income African Americans. As such, the findings from the study should be interpreted with caution due to not accounting for socioeconomic status.

The study was also limited by the use of self-report measures to assess race related stress, mental health, and general health of African Americans. Inherent to self-report measure are social disability, recall bias, and comprehension issues. The readability of the self-report measures was evident as some participants had difficulty comprehending some of the items and asked for assistance defining words. Equally important, the Personality Assessment Screener, Health Perceptions Questionnaire, and Comprehensive Trial Making Test have not been independently evaluated and assessed for their validity for use with African American men.

Krieger (1999) noted the difficulty of assessing discrimination and racism. As such, it is not surprising that limitation of the current study is related to the measurement of race-related stress. Despite the study's use of a robust measures of race-related stress, it was lacking because racism is ubiquitous. Moreover, racism is more than experiencing a single event. Unfortunately, most measures of racism and race related stress attempts to measure it through events. The

context which one experience racism in the United States is difficult to directly measure and is a short coming in most studies investing the effects of racism.

Kendrick et al. (2007) and Watkins et al. (2007) posited that African American men conceptualized mental health issues different and symptoms may manifest different. Thus, using measures such as the Personality Assessment Screener to assess mental health may not adequately capture clinical problems or distress reported by African American men. In addition to the screener not having cultural equivalence, it is possible the measure focused too heavily on psychopathology and clinical problems. Consequently, individuals may have been experiencing mild emotional distress but not to the level of creating a clinical problem.

Cognitive flexibility is a multidimensional construct and it has been assessed through various methods. A common method of assessing cognitive flexibility is through the use of the Comprehensive Trail Making Test. The CTMT is scored based upon completion time and not error. The CTMT appears to be a culture-free test on the surface as it is not verbally loaded. However, cultural considerations should also include administration and scoring protocols. Helms (1992) posited that psychological tests which utilize time as a key element may put African Americans at a disadvantage because they may be more concerned with arriving at the correct response rather than moving through the test at a rapid pace. Accordingly, it is difficult to ascertain if slower times reflected lower levels of cognitive flexibility or more interest in not making errors. Future studies measuring cognitive flexibility with African Americans should use non-timed assessments.

The last limitation was related to the cross-sectional non experimental design of the study. Cone and Foster (2006) noted that reciprocal causation and reverse causation are always threats to internal validity with non-experimental designs. Given the surveys are given only once,

it only provides a snapshot. It is important to note that it is unknown how much current events influenced the participants' responses. It is possible that environmental factors such as police killing of unarmed African Americans, civil rights protest, creation of Black Lives Matter movement or other news related events could have increased participants' awareness of racism. A longitudinal research exploring daily lives of African American men and how they navigate in a racist society could help shed more light on the effects of race related stress and health.

### **Implications and Future Directions**

Notwithstanding its limitations, the study made a unique contribution to the literature because of its inclusion of race stigma consciousness as a stressor and cognitive flexibility as a moderator. While previous studies have investigated the role of stigma consciousness and cognitive flexibility as it related to health outcomes, there are no known studies which have specifically focused on African American men. This study expands the knowledge base as it pertains to understanding race related stress not just from the standpoint of racial events but understanding how awareness of one's racial status can act as a unique stressor. The results of this study support prior findings that have found a relationship between race-related stress and health in minorities. It is likely that the findings would also apply to other racial and ethnic minorities who are exposed to race related stress.

The findings from this study can be used to support the need for modifying the mental health intake process with African American men and other racial and ethnic minorities. The importance of the mental health intake process cannot be understated as it is critical to diagnosing and case formulation. While most mental health providers utilize a biopsychosocial framework during the intake process, Meyer & Melchert, (2011) found that mental health clinicians' assessment of client sociocultural factors to be limited. Given the findings of this

study which emphasized the significant relationship between race related stress and mental health distress, steps should be taken to emphasize the role of race related stress in the lives of racial and ethnic minority clients. Addressing race related stress during the intake process can be accomplished in two different ways. First, the intake forms can be modified to ask racial and ethnic minorities if they have experienced race related stress. It also would be important to address the severity of the stress as the present study has shown that just being conscious of one's racial background can act as a stressor. It is typical to ask during the intake process, if a client is experiencing stress and from where the stress is occurring. Second, the mental health providers conducting the intake should spend additional time to understand how one's racial background impacts their lives. The questioning should probe not only for specific instances such as an incident where an African American man felt he was mistreated but also what it means to be an African American man living in a racist society. The present study showed that those more conscious of being a member of a stigmatized group were more likely to report mental health issues. Likewise, mental health providers should be diligent in understanding possible stressors which are directly influencing mental well-being and complicit in maintenance of mental health problems. Anecdotally it appears common to identify the race and gender of clients during assessment process but not put much emphasis into understanding how race and gender impacts African American male clients.

The results from the present study also have practical implications for healthcare providers treating African American men. Healthcare providers should be mindful of how race related stress and stigma consciousness interacts with the health of African American men. Healthcare providers should inquire about how African American men are managing stress from race related stressors during routine medical checkups and evaluations. Inquiring about race

related stress and stigma conscious can serve multiple purposes. First, it can aid with improving communication and rapport among African American men because the practitioner acknowledged that African American men have a unique experience as the direct result of racism. Rapport between healthcare provider and patient is vital as studies have shown that rapport is related to medication adherence with African American men (Lennox & Lavicka, 2010). Second, it can provide an avenue for African American men to express themselves. Talking about their experiences with race related stress may be cathartic and serve as a positive coping response. Subsequently, their stress load may decrease. McEwen (1998) noted that lower allostatic stress load is associated with better health. Last, healthcare providers can provide resources and basic coping techniques which can reduce the nefarious effects of race related stress.

Counseling psychology trainees may also benefit from the study's findings. Counseling psychology has been leading the charge in addressing multicultural issues in counseling and psychotherapy since its early inception (Munley, Duncan, McDonnell, & Sauer, 2004). Despite strong emphasis in multicultural psychology, there is room to move beyond addressing attitudes, skills, and knowledge with regards to cultural competency in counseling. It is the belief that trainees need to increase their insight. Insight represents a deeper understanding and meaning. The findings from the study illustrate the well-being of African American men does not come from singular racist events but merely thinking about one's race. Thus, it is upon training faculty to help students increase their insight to what it means to be an African American man living in the United States. The conversation around race must be more than sweeping cultural generalizations.

Systemic, institutional, and individual racism does not appear to be waning. Since the election of President Barak Obama, some noted a change from traditional racism to colorblind racism which is just as harmful (Bonilla-Silva & Dietrich, 2011). Regardless of the form of racism as indicated by the present study, the results are not good for African American men's health and mental health. The end goal must always be the complete elimination of racism which subsequently improves the mental well-being and health of African Americans. However, it is unlikely that centuries of systemic, institutional, and individual racism would dissipate in the very near future to significantly impact the health of African Americans. Therefore, the strategy should focus on ways to inoculate oneself while continuing to dismantle racism. Inoculating oneself from race related stress could take two forms, psychosocial education and targeted interventions to increase cognitive flexibility.

Psychoeducation can take the form of pamphlets and community health screenings to inform African American men of the dangers of race related stress. It is believed that community health departments should be more proactive by disseminating to the community the dangers of race related stress. Local health fairs should provide information to African Americans regarding coping techniques for managing race related stress. In addition, community health departments should provide screenings after publicized shootings of African Americans by law enforcement. Anecdotally, there has been an uptick of videos showing African American men killed by law enforcements. The viewings of the killings are repeatedly played on local and national news. The constant watching of such incidents constitute a form of race related stress. One can surmise that the constant watching of police shootings of African American men has taken a toll on African Americans' health and mental health. Findings from the present study

showed that repeated exposure and increased levels of race related stress can negatively impact the health and mental health of African American men.

The findings from this present study also provide preliminary support for understanding how cognitive flexibility interacts with various forms of race related stress to decrease mental health problems and improve overall health. Improving cognitive flexibility in African American men could be one mechanism to possibly improve the health and psychological well-being of African American men. Various interventions such as computerized training, aerobic exercise, and mindfulness practices have been shown to improve cognitive flexibility (Brehmer, Westerberg, & Bäckman, 2012; Masley, Roetzheim, and Gualtieri, 2009; and Moore & Malinowski, 2009). If increased cognitive flexibility does indeed improve the overall outlook of African American men's health and mental health, then a concerted effort must be made to provide African American men the opportunity to engage in such interventions.

Future research should examine how race stigma consciousness manifest itself and if individuals with higher levels of race stigma consciousness are more sensitive to other forms of race-related stress. The research could provide a critical gap for understanding why some African Americans are more impacted by individual race related stress, institutional race related stress, and cultural race related stress. Future studies might also focus on the long-term effects of race related stress's relationship to African American men's health. For example, researchers might measure African American men's race related stress levels multiple times over a period of one year. In addition, an interdisciplinary research team consisting of health professional could devise better methods assess and track the health of African American men. Physiological measures of health such as blood pressure, A1C, body mass index, and cortisol could provide

more accurate depiction of health. Also during the longitudinal study, researchers could examine cognitive flexibility's ability to moderate the relationship between race related stress and health.

## **Conclusion**

The relationship between race related stress and health has been well documented. However, there have been very few studies specific to exploring this relationship in African American men. The purpose of this study was two-fold. The first was to understand the types of race related stress and its relationship to African American men's health and mental health. Second, the study sought to explore the potential of cognitive flexibility as a moderator between race related stress and health. Utilizing a series of hierarchical multiple regressions, the findings supported the hypothesis that race related stress and stigma consciousness is related to African American men's health and mental health. In addition, the study provided evidence that stigma consciousness could act as a form of race related stress. Although, cognitive flexibility was not shown to individually moderate certain types of race related stress, the results of the study did show that when the different types of race related stress were combined, cognitive flexibility moderated the relationship. Cognitive flexibility is a promising pathway to inoculate the harmful effects of race related stress because cognitive flexibility can be increased. The findings from this study provides a multitude of future research pathways and implications in the applied areas.



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Appendix A  
Demographic Questionnaire

## Demographic Information Sheet

DOB: \_\_\_\_\_ Age: \_\_\_\_\_

Marital Status: Single   Married   Divorced   Widowed

Are you African American (Black) male?   Yes   No                      Hispanic Ethnicity:   Yes   No

Were you born in the United States?   Yes   No

If no, please state origin of birth: \_\_\_\_\_

How long have you been living in the United States? \_\_\_\_\_

What age did you come to the United States? \_\_\_\_\_

### FAMILY EDUCATION & OCCUPATIONAL HISTORY

Circle the appropriate number for your *Mother's*, your *Father's*, your *Spouse / Partner's*, and *your* level of school completed and occupation. If you grew up in a single parent home, circle only the score from your one parent. If you are neither married nor partnered circle only your score. If you are a full time student circle only the scores for your parents.

<u>Level of School Completed</u>	<u>Mother</u>	<u>Father</u>	<u>Spouse</u>	<u>You</u>
Less than 7th grade	3	3	3	3
Junior high / Middle school (9th grade)	6	6	6	6
Partial high school (10th or 11th grade)	9	9	9	9
High school graduate	12	12	12	12
Partial college (at least one year)	15	15	15	15
College education	18	18	18	18
Graduate degree	21	21	21	21

Circle the appropriate number for your *Mother's*, your *Father's*, your *Spouse / Partner's*, and *your* occupation. If you grew up in a single parent home, use only the score from your parent. If you are not married or partnered circle only your score. If you are still a full-time student only circle the scores for your parents. If you are retired use your most recent occupation.

<u>Occupation</u>	<u>Mother</u>	<u>Father</u>	<u>Spouse</u>	<u>You</u>
Day laborer, janitor, house cleaner, farm worker, food counter sales, food preparation worker, busboy.	5	5	5	5
Garbage collector, short-order cook, cab driver, shoe sales, assembly line workers, masons, baggage porter	10	10	10	10
Painter, skilled construction trade, sales clerk, truck driver, cook, sales counter or general office clerk.	15	15	15	15
Automobile mechanic, typist, locksmith, farmer, carpenter, receptionist, construction laborer, hairdresser.	20	20	20	20
Machinist, musician, bookkeeper, secretary, insurance sales, cabinet maker, personnel specialist, welder.	25	25	25	25
Supervisor, librarian, aircraft mechanic, artist and artisan, electrician, administrator, military enlisted personnel, buyer.	30	30	30	30
Nurse, skilled technician, medical technician, counselor, manager, police and fire personnel, financial manager, physical, occupational, speech therapist.	35	35	35	35
Mechanical, nuclear, and electrical engineer, educational administrator, veterinarian, military officer, elementary, high school and special education teacher,	40	40	40	40
Physician, attorney, professor, chemical and aerospace engineer, judge, CEO, senior manager, public official, psychologist, pharmacist, accountant.	45	45	45	45

<u>Estimated Annual Income</u>	<u>You</u>	<u>Spouse/Partner (if applicable)</u>	<u>Mother</u>	<u>Father</u>
Less than \$24,999 a year	1	1	1	1

\$25,000 to \$49,999 a year	2	2	2	2
\$50,000 to 74,999 a year	3	3	3	3
75,000 or more a year	4	4	4	4
Not currently working	5	5	5	5

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**BASIC HEALTH INFORMATION**

1. Do you have access to a primary care physician or family health doctor?    Yes    No
2. When was the last time you visited a doctor/physician (not including ER visits)? \_\_\_\_\_
3. Have you visited the ER for any type of medical treatment in the last year?    Yes    No
  - If yes, how many times \_\_\_\_\_    Purpose of visit(s): \_\_\_\_\_
4. Do you have medical/health insurance?    Yes    No
  - If yes, is it private (e.g. employer-based, private pay, COBRA)    Yes    No
  - If yes, is it government funded (e.g. Medicaid, Medicare, etc..)    Yes    No
5. On average, how many hours do you sleep per night? \_\_\_\_\_
6. How many servings of fruits and vegetables do you eat per day? \_\_\_\_\_
7. How many servings of caffeinated drinks do you drink per day? \_\_\_\_\_
8. Do you smoke cigarettes or other tobacco related products?    Yes    No
  - If yes, how many do you smoke per day? \_\_\_\_\_    per week? \_\_\_\_\_
9. Do you drink alcohol?    Yes    No    If yes, how many drinks per day? \_\_\_\_\_    per week? \_\_\_\_\_
10. Have you used marijuana or any other illicit drugs in the last year?    Yes    No
11. What is your height?    \_\_\_\_\_ feet    \_\_\_\_\_ inches
12. What is your weight? \_\_\_\_\_ pounds
13. Do you take any prescribed medications by your doctor/physician?    Yes    No
  - If yes, please list current medications and purpose: (Ex: Clonidine-high blood pressure) \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
  - \_\_\_\_\_
14. In general, would you say your health today is:    Excellent    Very good    Good    Fair    Poor
15. During the past 3 months, how much has your health worried or concerned you?
 

Circle One:    A great deal    Somewhat    A little    Not at all




Appendix B

Human Subjects Institutional Review Board Approval Letter

# WESTERN MICHIGAN UNIVERSITY



Human Subjects Institutional Review Board

Date: July 16, 2012  
To: Lonnie Duncan, Principal Investigator  
Brian Littleton, Student Investigator for dissertation  
From: Amy Naugle, Ph.D., Chair   
Re: HSIRB Project Number 12-07-08

This letter will serve as confirmation that your research project titled "African American Men's Health: Regulating Race-Related Stress through Cognitive Flexibility" has been **approved** under the **expedited** category of review by the Human Subjects Institutional Review Board. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the application.

Please note: This research may **only** be conducted exactly in the form it was approved. You must seek specific board approval for any changes in this project (e.g., *you must request a post approval change to enroll subjects beyond the number stated in your application under "Number of subjects you want to complete the study."*) Failure to obtain approval for changes will result in a protocol deviation. In addition, if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

**Reapproval of the project is required if it extends beyond the termination date stated below.**

The Board wishes you success in the pursuit of your research goals.

**Approval Termination: July 16, 2013**

Walwood Hall, Kalamazoo, MI 49008-5456  
PHONE: (269) 387-8293 FAX: (269) 387-8276

Appendix C

HSIRB Approved Consent Form

JUL 16 2012  
  
HSIRB Chair

Western Michigan University  
Counselor Education Counseling Psychology

**Principal Investigator:** Lonnie Duncan, Ph.D.  
**Student Investigator:** Brian Littleton, M.S.  
**Title of Study:** African American Men's Health: Regulating Race-related Stress through Cognitive Flexibility

You have been invited to participate in a research project titled *African American Men's Health: Regulating race-related stress through cognitive flexibility*. This project will serve as Brian Littleton's dissertation for the requirements of the doctorate degree in counseling psychology. This consent document will explain the purpose of this research project and will go over all of the time commitments, the procedures used in the study, and the risks and benefits of participating in this research project. Please read this consent form carefully and completely and please ask any questions if you need more clarification.

**What are we trying to find out in this study?**

This study is investigating how race-related stress may impact the health of African American men. In addition, the study is looking at ways to combat the potential negative effects of stress on African American men's health. The study will also look at individual's ability to block out distractions and concentrate. It is believed that people who can block out distractions and quickly change task, can reduce the influence of race-related in African American men's health.

**Who can participate in this study?**

You are eligible to participate in the study if you are:

- Over the age of 18 years old
- Self identify as an African American (e.g. Black) male
- Can read, write, and understand English
- Not living in a nursing home or receiving hospice care
- No history of any significant head injury

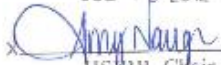
**Where will this study take place?**

The study will take place on the campus of Western Michigan University and 3608 S. Burdick Professional Offices. The study may also take place in a mutually convenient site selected agreed upon by the participant and investigator.

**What is the time commitment for participating in this study?**

The study requires a one-time commitment to complete the study. The overall time to complete the study from beginning to end is 45 minutes.

**What will you be asked to do if you choose to participate in this study?**

JUL 18 2012  
  
HSRB Chair

You will be asked to complete a battery of surveys regarding your health, mental health, and experiences as an African American male. You will also complete a brief task where you will draw a line connect circles in a particular order.

**What information is being measured during the study?**

The battery surveys you provide the investigator information regarding your perception of your health, health issues you may have, and mental health. The surveys will also provide information regarding your experiences with racism as an African American male. All responses to the surveys use Likert scales (e.g. strongly agree to strongly disagree). The study will also measure your ability to resist distraction and shift your attention.

**What are the risks of participating in this study and how will these risks be minimized?**

The study involves minimal risk. There is a chance that some questions may make you feel uncomfortable. You have the right to not answer those if you want. All the information I receive from you including your name and any other identifying information will be strictly confidential and kept in a locked file cabinet. You may also feel tired when filling out the survey but you are allowed to stop and take breaks if needed. There are no other expected risks to you for helping me with this study.

**What are the benefits of participating in this study?**

Information gathered in the study may not directly benefit you but the information learned in this study should provide more general benefits and increase the knowledge base.

**Are there any costs associated with participating in this study?**

There is no cost associated for participating in the study.

**Is there any compensation for participating in this study?**

You will be compensated with a \$10 gift card for your time and completing the study. Participants must complete the study in order to be compensated with a gift card.

**Who will have access to the information collected during this study?**

Only the primary investigator and student investigator will have access to the information collected. If the results of the study are presented at a conference or published, your name or identity will not be associated with any of your responses given. All surveys and instruments used during the study have been coded and are not attached to any given participant in the study.

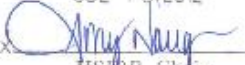
**What if you want to stop participating in this study?**

You can choose to stop participating in the study at anytime for any reason. You will not suffer any prejudice or penalty by your decision to stop your participation. You will experience NO consequences either personally if you choose to withdraw from this study.

The investigator can also decide to stop your participation in the study without your consent.

WESTERN MICHIGAN UNIVERSITY  
H. S. I. R. B.  
Approved for use for one year from this date:

JUL 16, 2012

  
HSIRB Chair

*If you choose to not participate in this survey, you may either return the blank survey packet or you may discard it in the box provided. Returning the survey indicates your consent for use of the answers you supply.*

Should you have any questions prior to or during the study, you can contact the primary investigator, Dr. Lonnie Duncan at 269-387-5152 or [Lonnie.Duncan@wmich.edu](mailto:Lonnie.Duncan@wmich.edu) or student investigator, Brian Littleton, M.S. at 248-579-7062 or [brian.p.littleton@wmich.edu](mailto:brian.p.littleton@wmich.edu). You may also contact the Chair, Human Subjects Institutional Review Board at 269-387-8293 or the Vice President for Research at 269-387-8298 if questions arise during the course of the study.

This consent document has been approved for use for one year by the Human Subjects Institutional Review Board (HSIRB) as indicated by the stamped date and signature of the board chair in the upper right corner. Do not participate in this study if the stamped date is older than one year.

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