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Is Secondhand Discrimination Harmful for the Mental Health of Black Americans? Findings from a Community Epidemiological Study

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IS SECONDHAND DISCRIMINATION HARMFUL FOR THE MENTAL HEALTH OF BLACK AMERICANS? FINDINGS FROM A COMMUNITY EPIDEMIOLOGICAL STUDY

DISSERTATION

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in the College of Arts and Sciences at the University of Kentucky

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ABSTRACT OF DISSERTATION

IS SECONDHAND DISCRIMINATION HARMFUL FOR THE MENTAL HEALTH OF BLACK AMERICANS? FINDINGS FROM A COMMUNITY EPIDEMIOLOGICAL STUDY

In recent years, there has been a growing concern about not only the deleterious health effects of direct experiences of racism, but also how individuals are affected by others' experiences of racism. It has been firmly established that direct exposure to discrimination can negatively impact the mental health of Black Americans and other minorities. But there is a dearth of empirical evidence that may answer the question of how indirect experiences of racism affects health. The purpose of this study is threefold: 1) to examine the social distribution of personal and vicarious experiences of discrimination among Black adults, 2) to understand the extent to which indirect experiences of discrimination are associated with psychological distress relative direct experiences of discrimination among Black adults, and 3) to determine what psychosocial factors may moderate the relationship between vicarious discrimination and mental health outcomes among Black adults.

Using data from the Nashville Stress and Health Study (N=1252), multivariate regression analyses were employed to study the social distribution of vicarious discrimination among a subsample of Black adults (n = 627). Additionally, multivariate regression analyses were used to examine the relationship between vicarious discrimination, and the moderators of this relationship. The subsamples were stratified by gender to assess the most salient within-group differences. Socioeconomic position, gender, and living in a predominantly white neighborhood were among the factors that significantly influenced the respondents' reports of vicarious discrimination. Results from the analyses revealed that vicarious experiences of discrimination may have significant mental health implications for Black Americans. Findings from this study underscore the importance of considering the toll of the larger, more comprehensive race-related stress experience that Black Americans and other racial and ethnic minorities may endure.

KEYWORDS: Vicarious Racism, Black Americans, Mental Health, Discrimination, Social Determinants of Health

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4/29/2020
Date

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DEDICATION

This work is dedicated to Susan Moody, Daniel Moody, Sarita Moody, Velma Moody and the rest of my amazing family. Thank you for your unwavering love and support. This dissertation is also dedicated to my ancestors who survived so that I may be here to do this work. Today, I stand on their shoulders.

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CHAPTER I

INTRODUCTION

Erica Garner was only twenty-seven years old when she died on December 30, 2017 from a heart attack. Although she had experienced complications during a pregnancy only months before her death, it was widely speculated that these preexisting conditions had been exacerbated during her relentless fight to attain justice for her father's unmerited murder in 2014 that had been largely publicized in media outlets. Erica's father, Eric Garner, had been suspected of illegally selling cigarettes in Staten Island, New York City just before Daniel Pantaleo, Justin Damico and other New York Police Department (NYPD) officers used a chokehold—a strategy that is prohibited by NYPD policy—to arrest him. Eric Garner's death was one of many that had been recorded on video and shown continuously on news outlets and social media between 2014 and 2016 to raise awareness about how Black American men and women had been targeted and treated unfairly by law enforcement. But, for Erica, a Black woman who had lost her father to the brutal hands of racism, this characterized the way she would spend the last few years of her life, battling for the arrest and conviction of the officers who unjustly took her father's life.

Since Erica's death, there has been a growing concern about not only the deleterious health effects of direct experiences of racism, but also the ways in which individuals are affected by *others'* experiences of racism. We undoubtedly know that direct exposure to racial discrimination can negatively impact the health of Black Americans and other minorities. The literature on racism and health is rife with evidence supporting these notions. But we still lack empirical findings that answer some of the key

questions that have been circulating through the public sphere. Specifically, how might an individual be affected by someone *else's* experiences of racial discrimination? Moreover, what attributes of an individual might buffer the potentially negative effects of secondhand discrimination?

Stress can be harmful for individuals and racism is a well-known stressor with several health implications for racial minorities (Clark et al. 1999). Thus, it stands to reason that race-related stress (Harrell 2000) is an added health burden for Black Americans that may hurt the vitality and longevity of the health for this group that experiences worse health outcomes relative to Whites at every level of socioeconomic status. The question of how racism directly impacts health has been answered in a multitude of perspectives over the past several decades. However, there is a dearth of empirical evidence that may answer the question of how indirect experiences of racism affects health, particularly because of methodological barriers. The current measures that are widely-used in studies to capture experiences of discrimination focus primarily on the individual's *personal* experiences of racial discrimination. However, this perspective is too narrow if we are hoping to measure the effects of the full race-related stress experience. We must broaden our scope by measuring indirect experiences of discrimination, in addition to direct experiences of discrimination. Without this adjustment in our approach, we risk underestimating the greater toll of the race-based stress on Black Americans' health.

In a separate line of research, certain unexpected associations between stress exposure and mental health outcomes among Blacks have emerged, leaving researchers to acknowledge a conundrum known as a "race paradox in mental health". Generally,

findings have shown that while Blacks experience higher stress exposure than Whites, they also report lower rates of most psychiatric disorders and better self-rated mental health relative to Whites (Mouzon 2013; Brown 2003). Despite these puzzling findings, we know that Blacks with poor mental health tend to experience more severe and disabling outcomes that remain untreated compared to Whites (Williams et al. 2007). Thus, it is crucial for researchers to continue investigating the negative predictors of well-being for African-Americans in hopes to reduce their disproportionate mental health burden. A wealth of empirical evidence has revealed that higher levels of subjective well-being lead to better health and longevity (e.g., Diener and Chan 2011). Additional factors such as personal resources (e.g., mattering and social support) and their assumed protective qualities within the context of vicarious forms of racism are worthy of investigation. Generally, mattering is inversely related to negative mental health outcomes (Rosenberg and McCullough 1981). But, does mattering protect Blacks upon learning that a family member or close friend has experienced discrimination? Although such a question is beyond the scope of this dissertation, a better understanding of this could allow us to explain how social resources operate among Blacks.

Finally, the life course paradigm has empowered us to explain and improve our understanding of racial differences in health outcomes as they relate to time and the aging of Americans. A large conglomerate of findings have shown that various forms of racism and overexposure to adversity operate such that negative health effects—the cardiometabolic risk outcomes, in particular—are not always immediately apparent, but they become more pronounced among Blacks relative to Whites *over time*. Researchers have documented how the cumulative effects of life experiences of adversity and

discrimination lead to poorer health outcomes among Black Americans at each level of socioeconomic status (Braveman 2014; Williams et al. 2016). For example, Geronimus and colleagues (2006) explained why Blacks experience early health deterioration as they age using the "weathering" hypothesis and by observing specific biomarkers that indicate the impact of accumulated stress on the body's systems over time. Ultimately, this study showed us how the cumulative impact of recurrent experiences with economic and sociopolitical adversity, and marginalization contribute to the higher rates of morbidity and excess mortality among Black Americans.

In another example, James (1994) used the "John Henryism" hypothesis to explain how active coping styles that are culturally unique for Blacks can compromise their health over time and lead to elevated risks of hypertension and stroke, which are among the leading causes of death and functional limitations in America. Furthermore, he elucidated some of the within-group differences by proposing that Blacks who are less educated, have less resources, and live in chronically stressful conditions are more susceptible to this risk than Blacks with higher levels of socioeconomic status. James achieved this by using a 12-item index designed specifically for Blacks that measures indicators of mental and physical health vigor, unwavering dedication to hard work, and a "single-minded determination" to achieve success. His use of the life course perspective showed us that although these traits may initially benefit Black Americans who are chronically exposed to race-related stressors, this coping style may also contribute to the early health deterioration among Blacks once they reach their middle-aged years.

Jackson and colleagues (2010) used the life course perspective to explain how unhealthy behaviors (e.g., smoking, alcohol consumption, illicit drug use, and binge

eating foods that are high in fats and carbohydrates) among Black Americans who live in chronically stressful environments may buffer some of the negative mental health effects of stress, but also account for the racial disparities in morbidity and excess mortality over time. Essentially, the life course paradigm has significantly advanced our understanding of racial inequalities in health outcomes as they relate to time and the aging of Americans. Findings based on this framework have been so vital to the subfield of race and health that this perspective has become the preferred viewpoint for studying racial disparities in health.

However, despite this great legacy of work, it is possible that we are still underestimating the effects of racism and adversity for Blacks over the life course by using the methodological tools that currently exist. Again, the data collection instruments that many large datasets have employed are limited in their ability to capture the effects of the full race-related stress experience. For example, the Major Experiences of Discrimination Scale (Williams et al. 2008) asks respondents if they have ever been unfairly treated under several separate circumstances (e.g., "unfairly fired or denied a promotion," "unfairly treated by the police,", etc.). However, the instrument does not ask the respondent if anyone close to them has experienced these forms of unfair treatment. The "linked lives" concept (Elder 1994)—a concept that refers to the interconnectedness of human lives through social relationships that exist between people's network of friends and family across the life span—suggests that at each stage of life, people's actions, and experiences of success and adversity will likely affect the people whom they are closely tied to (Pearlin 2010). Thus, we have reason to investigate the possibility that one's experiences of racial discrimination may affect the individuals with whom they share

connections with. Furthermore, we now have evidence that suggests that secondhand experiences of racial discrimination are associated with cardiometabolic outcomes among African Americans, such as hypertension (Boulter et al. 2015; Quinlan et al. 2016). Yet, the impact of vicarious discrimination on the subjective well-being of this group is less clear.

This three-paper format dissertation will use stress theory, and the life course and race-related stress frameworks to guide novel considerations of the impact of racial discrimination on the health of Black adults in the United States. Multivariate regression analyses will be used to assess the potentially harmful effects of various forms of racial discrimination (i.e., personal and vicarious) on the subjective well-being of Black Americans, a group that is overexposed to stressors over the life course relative to other groups (Gee et al. 2012). These assessments will help to account for the forms of racism that have received less scholarly attention. Additionally, these findings may inform the efforts to reduce racial disparities in health for Americans.

The Significance of Well-Being for Black Americans

Psychologists (Kahneman et al. 2003) have conceptualized well-being using three approaches that capture separate dimensions: life evaluation, hedonic well-being, and eudemonic well-being. Life evaluation denotes people's overall life satisfaction and perceptions about the quality of their lives, while hedonic well-being signifies individuals' daily feelings or mood (i.e., happiness, sadness, anger, and stress). Eudemonic well-being refers to an individual's assessment and interpretations about the meaning of one's life. Well-being is a strong predictor of health and longevity. Meta-

analyses (Chida and Steptoe 2008) reveal an inverse relationship between positive well-being and mortality among both healthy and diseased populations net of negative affect, wherein life satisfaction, hopefulness, optimism, and sense of humor in addition to positive moods (e.g., happiness, joy, energy, etc.) all predict longevity and reduced risk of mortality among individuals. Although there is a bi-directional relationship between physical health and personal well-being, the scope of this dissertation will be limited to considering psychological distress as a potential pathway for increasing the vulnerability of Black Americans for poor health outcomes over the life course.

Blacks have higher mortality rates than Whites for most of the top causes of death (i.e., cardiovascular disease, stroke, cancer, etc.) (CDC/NCHS 2011; Kung et al. 2008; Williams and Mohammed 2009). The life course perspective has been paramount for explaining how poor well-being outcomes contribute to the exacerbation of the poor physical health outcomes that have been empirically observed among Blacks. For example, the "weathering" hypothesis (Geronimus et al. 2006) and the concept of allostatic load (McEwen 1998)—a measure of several biomarkers that indicate the amount of cumulative wear and tear on the body's systems resulting from repeated adaptation to stress over the life span—were both used to observe specific biomarkers that indicate the impact of accumulated stress on the body's systems over time, and ultimately explain why Blacks experience early health deterioration. Findings from this study revealed how the cumulative impact of stressors over one's life span (e.g., recurrent experiences with economic and sociopolitical adversity, and marginalization) contribute to the higher rates of morbidity and excess morality among Black Americans. In other words, we can point to tangible, substantive ways to measure not only the effects of

stress, but the impact of the accumulation of stressors on individuals' health over their life span. With the use of allostatic load, we can quantify accurate measures of the physiological burden on Blacks imposed by stress and predict when individuals may experience a "burnout". Furthermore, using these tools, researchers can demonstrate how persistent high-effort coping in response to chronic stress among Black Americans contributes to their poorer health outcomes (e.g., worse cognitive and physical functioning, and increased risk for cardiovascular disease) relative to Whites at each level of socioeconomic status.

As another example, studies have demonstrated that perceived racism is associated with increased levels of anger and hostility (Armstead et al. 1989; Bullock and Houston 1987; Steffen et al. 2003). Blacks generally score higher than Whites on measures of anger and hostility (Barefoot et al. 1991; Scherwitz et al. 1991), which are associated with negative cardiometabolic outcomes (Barefoot et al. 1983; Miller et al. 1996). Black Americans have higher excess mortality rates related to cardiovascular disease and other negative cardiometabolic outcomes relative to other racial and ethnic groups (CDC/NCHS 2011). Finally, the "race paradox in mental health" (Mouzon 2003) suggests that Blacks' overexposure to stressors over the life course may not translate to higher rates of mental health disorders relative to Whites, implying that well-being is an alternative pathway to poor health outcomes that is worthy of investigation.

Mechanisms Related to Racial Disparities in Health

The life course framework is useful for highlighting the mechanisms through which Black Americans' health deteriorates at a greater rate than Whites over time, but it

is also important for us to understand how Blacks can become further disadvantaged over the life course because of early life adversity, and overexposure to chronic stressors. A wealth of empirical evidence shows how early life adversity can negatively impact health during adulthood (Fagundes et al. 2013; Miller et al. 2011; Mulligan 2016; Shonkoff et al. 2009; Taylor et al. 2011). Findings have shown strong implications of the role of early of life experiences for shaping mental health among Black adults (Thomas and Moody, Forthcoming; Roxburgh and MacArthur 2014; Umberson et al. 2014). Experiences of racism during childhood, a sensitive period, have been found to negatively impact childhood health in addition to adult health (Priest et al. 2013; Sanders-Phillips 2009).

Merton (1988) defines cumulative advantage (CA), or disadvantage in contexts of inequality, as "the ways in which initial comparative advantage of trained capacity, structural location, and available resources make for successive increments of advantage such that the gaps between the haves and have-nots…widen" (p. 606). DiPrete and Eirich (2006, p. 272) contend that the "central descriptive idea in the CA literature is that the advantage of one individual or group over another grows (i.e., accumulates) over time, which is often taken to mean that the inequality of this advantage grows over time." Regarding the proliferation of inequality over the life course, *cumulative advantage* refers to the idea that an individual or group's advantages, small or large, over another accumulates over time such that the gaps between characteristics (e.g., health, wealth, and/or social position) also increase over time. For example, institutions such as slavery created an uneven playing field for Blacks in America, while some Whites were steadily building generational wealth. Common colloquialisms, such as "the rich get richer" and the "the poorer get poorer", are statements that describe the nature of this concept, and its

duality. We can observe cumulative advantage and disadvantage regarding socioeconomic status, for example, within several social institutions, including: education, neighborhood effects, occupation, and overall life trajectory.

Although cumulative advantage is a mechanism that explains how individuals may benefit from having higher income and education, it is important to note that higher socioeconomic levels do not always benefit Black Americans the same as Whites because Blacks are likely to encounter "diminishing returns" at higher levels of socioeconomic position (Farmer and Ferraro 2005). These diminishing returns on higher levels of socioeconomic position for Blacks relative to Whites include: less pay relative to Whites of comparable backgrounds (U.S. Census Bureau 2009; Williams et al. 2010), fewer physical health benefits (Braveman et al. 2010), and, in many cases, worse levels of well-being (Cole and Omari 2003; Williams et al. 1997). Researchers attribute these findings to the greater likelihood that Blacks will experience early life adversity relative to Whites, as well as the added burden of racial discrimination (Coll et al. 1996; Slopen et al. 2010; Umberson et al. 2014; Williams and Mohammed 2009). Findings have shown that even Blacks with higher levels of socioeconomic position in adulthood are more likely to have grown up in adverse conditions (Williams et al. 2010). Studies that do not consider this life trajectory that is unique to many middle-class Black Americans risk underestimating the noxious effects of exposure to early life adversity on their health in adulthood, which is a key component for explaining many racial differences in health. Additionally, there are "hidden costs" of upward social mobility for Blacks that Whites do not necessarily endure, such as the omnipresent risk of experiencing alienation and other forms of race-related stress as a result of working and living in predominantly

White spaces and being separated from other Blacks (Cole and Omari 2003). Blacks are also less protected from the threats of downward mobility relative to Whites of comparable backgrounds (Pattillo-McCoy 1999a).

Stress Over the Life Course

Generally, stress theory (Lazarus and Folkman 1984; Pearlin et al. 1981) is commonly used for elucidating the links between major life events, or chronic strains, and health outcomes over the lifespan of individuals. Pearlin and colleagues (1981) equate the stress process to the inevitable struggle that an organism endures while attempting to reestablish homeostasis after a change has occurred. According to their example, disequilibrium is created among the other parts of the organism when a change occurs in one area. The subsequent struggle for the organism to readjust is a wearing and exhausting process that is comparable to the stress experience for an individual. Their widely-accepted conceptualization of the stress process accentuates three major conceptual domains: the sources of stress (e.g., stressful life events, life strains, etc.), mediators of stress (e.g., social support, coping, etc.) and manifestations of stress (e.g., anxiety, depression, etc.). They used longitudinal data to investigate how the stress process is formed through an amalgamation of major life events, chronic life strains, self-concepts, coping, and social support. Job disruptions were used as a measure for modeling how life events can adversely affect enduring role strains. From this point, Pearlin and colleagues (1981) were able to show how positive concepts of self (i.e., self-esteem and mastery) are eroded through the exacerbation of these strains, leaving one vulnerable to experiencing symptoms of stress, like depression.

One framework that allows us to effectively understand and apply the stress process model, as well as aging and life trajectories, is the life course framework (Dannefer 1987; Thoits 1995). There have been several theoretical iterations of the life course (e.g., Elder 1994; Gee et al. 2012; Pearlin 2010, etc.), though each interpretation is comprised of similar foundational concepts that guide our understanding of health disparities among individuals and groups. Some of the major components of the life course framework include: transitions, timing and sequencing, agency and mastery, and the linked lives and role set. A vital assumption of the life course paradigm is that individuals are impacted by social institutions and life events continuously as they move from birth to the death (Braveman 2014; Eliason et al. 2015; Harris 2010). Exposure to adversity and psychological distress have been widely-cited as robust predictors for negative mental and physical health outcomes (Lantz et al. 2005; Thoits 2010). A bevy of findings have suggested that Black Americans endure the cumulative burden of higher exposure to adversity at each level of socioeconomic status over the life course relative to others, which adversely impacts their health from birth to death (Brondolo et al. 2011; Clark et al. 1999; Slopen et al. 2010; Thoits 2010; Turner and Avison 2003; Williams et al. 2016). Furthermore, people's time spent in "asset-building contexts" (e.g., education) and "disadvantaged contexts" (e.g., prison) is structured and patterned by racism (Gee et al. 2012). Moreover, increasingly more researchers are investigating how experiences of discrimination during specific periods, and the cumulative effects of these experiences over time, are affecting the life trajectories of Black Americans.

Race-Related Stress

Individuals of all backgrounds may experience varying levels of stress. However, racial discrimination is an added stress burden that is unique to racial and ethnic minorities. Racism is an empirically established significant social stressor for Black Americans. Clark and colleagues (1999) define racism as "beliefs, attitudes, institutional arrangements, and acts that tend to denigrate individuals or groups because of phenotypic characteristics or ethnic group affiliation" (p. 805). Additionally, they offer a broadly-accepted biopsychosocial model—a model that incorporates the complex interactions of biological, psychological, and social factors for understanding health-related issues—to explain how racism affects the stress process. Their model is largely based on the stress-coping model proposed by Lazarus and Folkman (1984). They not only acknowledged that racism can be either attitudinal (i.e., prejudice) and/or behavioral (i.e., discrimination based on race, etc.) (Sigelman and Welch 1991, Yetman 1995), but they also underscored the importance of acknowledging the effects of intergroup and intragroup racism. Prior to this model, few studies had used a complete and empirically testable biopsychosocial model to investigate the deleterious effects of perceived racism. Their hope surrounding this biopsychosocial model includes the possibility of reducing stress among Blacks, and racial disparities in health outcomes, by highlighting the harmful health-related effects of racism. The guiding framework for this model suggests that there are potentially substantial psychological and physiological stress responses that result from the perception of environmental stimuli (e.g., personal interactions, policies, public disregard for the quality of Black lives, etc.) as racist. It is important to note that the mere *perception* of an environmental stimulus as racist is enough to trigger stress reactivity

among Blacks that could contribute to the negative cardiometabolic outcomes that place them at an elevated risk for early mortality and morbidity. Furthermore, these responses are influenced by factors that are constitutional, sociodemographic, psychological and behavioral, as well as the coping strategies available to individuals.

Race-related stress has several serious health implications for Blacks in America. Three key pathways have been outlined by Williams and Mohammed (2009): 1) Stress exposure can induce negative emotional states that beget psychological distress and poor health outcomes; 2) stress experiences may increase the chances of the individual resorting to poor health behaviors (i.e., smoking, alcohol abuse, poor sleep habits and quality of rest, neglecting exercise, binge eating, etc.) as coping mechanisms; 3) stress reactivity psychologically, and behaviorally, can result in fundamental changes in numerous physiological systems (e.g., neuroendocrine, autonomic, and immune systems). A deeper understanding of this area of research is paramount for explaining why Black Americans have higher mortality rates for most of the cardiometabolic risk-related leading causes of death (e.g., cardiovascular disease, stroke, diabetes, hypertension, cancer, etc.) (Williams and Mohammed 2009; Kung et al. 2008).

Harrell (2000) proposes a framework for understanding the process of race-related stress, which she defines as "the race-related transactions between individuals or groups and their environment that emerge from the dynamics of racism, and that are perceived to tax or exceed existing individual and collective resources or threaten well-being" (p. 44). She argues that racial minorities experience an additional burden of stress that is equal to or greater than life's most common and acute stressors. Furthermore, experiences of racism can be significant sources of stress, as they are embedded within interpersonal,

collective, cultural-symbolic, and sociopolitical contexts. Prior to this framework, the literature on racism was rife with empirically-verifiable associations between discrimination and health outcomes. However, Harrell's framework explicates the importance of recognizing the constant simultaneous exposure to racism in multiple life contexts for individuals over the life course, which makes up the full, multidimensional race-related stress experience.

There are six types of race-related stress: racism-related life events, daily racism microstressors, chronic-contextual stress, collective experiences of racism, the transgenerational transmission of group traumas, and vicarious racism. Racism-related life events and daily racism microstressors are constructs that are akin to the widely-used scales that capture the Major Experiences of Discrimination (Williams et al. 2008) and Everyday Discrimination (Williams et al. 1997). Racism-related events refer to the larger, more acute race-related stressors that are less likely to occur on a frequent basis, if at all, for individuals (i.e., not being hired for a job for unfair reasons, being unfairly harassed by law enforcement, being unfairly denied from a housing opportunity, etc.). Daily racism microstressors refers to the chronic experiences of racism that are much more likely to occur on a daily or weekly basis for individuals (i.e., microaggressions, being treated with less courtesy and respect than others, being called names or insulted, etc.). The component of the race-related stress framework that emphasizes collective experiences incorporates the notion that regardless of personal experience, individuals are indeed affected by cultural-symbolic and sociopolitical manifestations of racism. Chronic-contextual stress refers to the lifetimes of stress that racial minorities must endure as result of the limitations on their opportunities and unequal distribution of

resources, driven by racism, that negatively affect their quality of life. The transgenerational transmission of race-related stress underscores the ways in which history has uniquely shaped the lives and well-being of racial/ethnic groups as aspects of race-related oppression have been transmitted across generations orally, and through the socialization of trauma-related behavior and beliefs. Although each of these components highlight key areas of the race-related stress experience, this dissertation will primarily focus on how racism impacts the well-being of Black Americans through the lens of vicarious racism.

The vicarious racism element of the race-related stress framework refers to the indirect experiences of racism that individuals endure through observations and the accounts of others, underlining the idea that racism can impact individuals directly and indirectly. Hearing accounts, or simply witnessing another person experience racism can trigger physiological stress responses within the individual that are comparable to the stress reactivity that is associated with direct experiences of racism. However, empirical evidence to support this conception is still very limited.

Vicarious racism is similar to the life course framework concept of “linked lives”, which refers to the interconnectedness of human lives through social relationships that exist between people’s network of friends and family across the life span; furthermore, this concept suggests that at each stage of life, people’s actions, and experiences of success and adversity will likely affect the people who are closest to them (Elder 1994; Pearlin 2010). The linked lives concept reminds us that not only do life events happen to individuals on a continuum, but that at each stage of life, people’s experiences of success and adversity will likely affect the people who are closely tied to them (Pearlin 2010).

Because racism has been identified and empirically acknowledged as a significant social stressor for Black Americans (Clark et al. 1999), it stands to reason that the race-related stress that individuals experience will likely affect the people in their social network who are the closest to them. However, this perspective is often excluded from major studies on racial disparities in health. The National Survey of American Life: a study of racial, ethnic and cultural influences on mental disorders and mental health (NSAL; Jackson et al. 2004)—the largest nationally-representative study of African-Americans and people of Caribbean descent led by several of the top researchers in the subfield of race and health—is a leading study in racial disparities in health that does not include a suitable measure for individuals' experience of vicarious racism or race-related stress from the linked lives perspective. The NSAL has been cited well over 500 times, and the data have been analyzed for many peer-reviewed journal articles and dissertations for more than a decade. Despite its wide acceptance, however, none of the subsequent analyses or studies that have come from these data are able to lend insight for how individuals are affected vicariously through other people's experiences of racial discrimination. The NSAL has measurement limitations.

Indeed, the study included instruments that measure the effects of major and chronic experiences of discrimination (i.e., "Have you ever been unfairly stopped, searched, questioned, physically threatened or abused by the police?", "You are called names or insulted," etc.). Yet, each measure included questionnaire items that solely measure the effects of the respondents' personal experiences of racial discrimination. This presents a large limitation because the amount of stress that is race-related may be unaccounted as vicarious racism is not measured. If one were to design a research study

today that examines the effects of race-related stress on Black Americans' health, then they should include the brief version of the Index of Race-Related Stress (Utsey 1999) because it is the best-equipped instrument for capturing the effects of race-related stress from the linked lives perspective. In the instructions, the author states that the respondent is to indicate which experiences "have happened to you or someone very close to you (i.e. a family member or loved one)," which does account for the second-hand race-related stress that is often experienced by individuals.

Although the index of Race-Related Stress is the most adequate instrument that we currently have for studying the totality of the race-related stress experience, it also has its limitations that should be addressed. Because the instructions explicitly state that the respondent should indicate experiences that have happened to them or someone close to them on the same scale, we are unable to decipher whether the experiences they have indicated as upsetting are from their own personal experiences or second-hand experiences of discrimination. Thus, researchers today are left with no adequate tool for truly measuring and analyzing the effects of the race-related stress experience from linked lives life course perspective. Furthermore, the Race-Related Stress index is not included in the majority, if any, of major nationally-representative studies on health outcomes for Americans. Future researchers should focus on constructing valid and reliable instruments with items that sufficiently measure race-related stress from the vicarious racism perspective and include them in future nationally-representative and community sample studies. Without these measures, we will continue to potentially underestimate the risks and harmful effects of race-related stress on Black Americans that contribute to racial disparities in health. The purpose of this dissertation is to address this

gap in data collection methods, while assessing the impact of both personal and vicarious experiences of discrimination on the subjective well-being of Black Americans in a community sample.

Data Overview

The data to be used for all three papers are drawn from the Nashville Stress and Health Study (NSAHS), which is a federally-funded project specifically aimed toward a greater understanding of Black-White and socioeconomic status disparities in health. The NSAHS is a random sample (N = 1252) of 627 Black men and women, and 625 White men and women residing within Davidson County, Tennessee, which includes and extends beyond the greater Nashville, Tennessee area. The study investigators selected Nashville as a site not only because it is the state capital, but because it also includes two large historically Black universities (Fisk and Tennessee State) in addition to the country's oldest historically Black medical school (Meharry Medical College). These conditions made this site desirable as there was an increased likelihood that a representative sample of Black Americans would include individuals of higher socioeconomic position. The investigators contended that the process of disaggregating the health significance of race and socioeconomic status would require adequate representation of Black Americans of higher socioeconomic status.

Four stratified samples of adults ages 25 to 65 were then drawn such that half of the individuals were Black and the other half were non-Hispanic White, with comparable numbers of men and women in each racial group. After 2400 potential respondents were randomly sampled—one individual from each household—1252 participants successfully

completed computer-assisted interviews with interviewers who were race-matched with the respondents and trained by the study investigators. Data collection lasted from April 2011 to January 2014. For the present study, a sample of 627 Black Americans will be used, including 297 men and 330 women. The NSAHS data set was ideal for addressing the aims of this study because of its sufficient sample of Black Americans for examining gender and social class contrasts, as well as its unique discrimination measures.

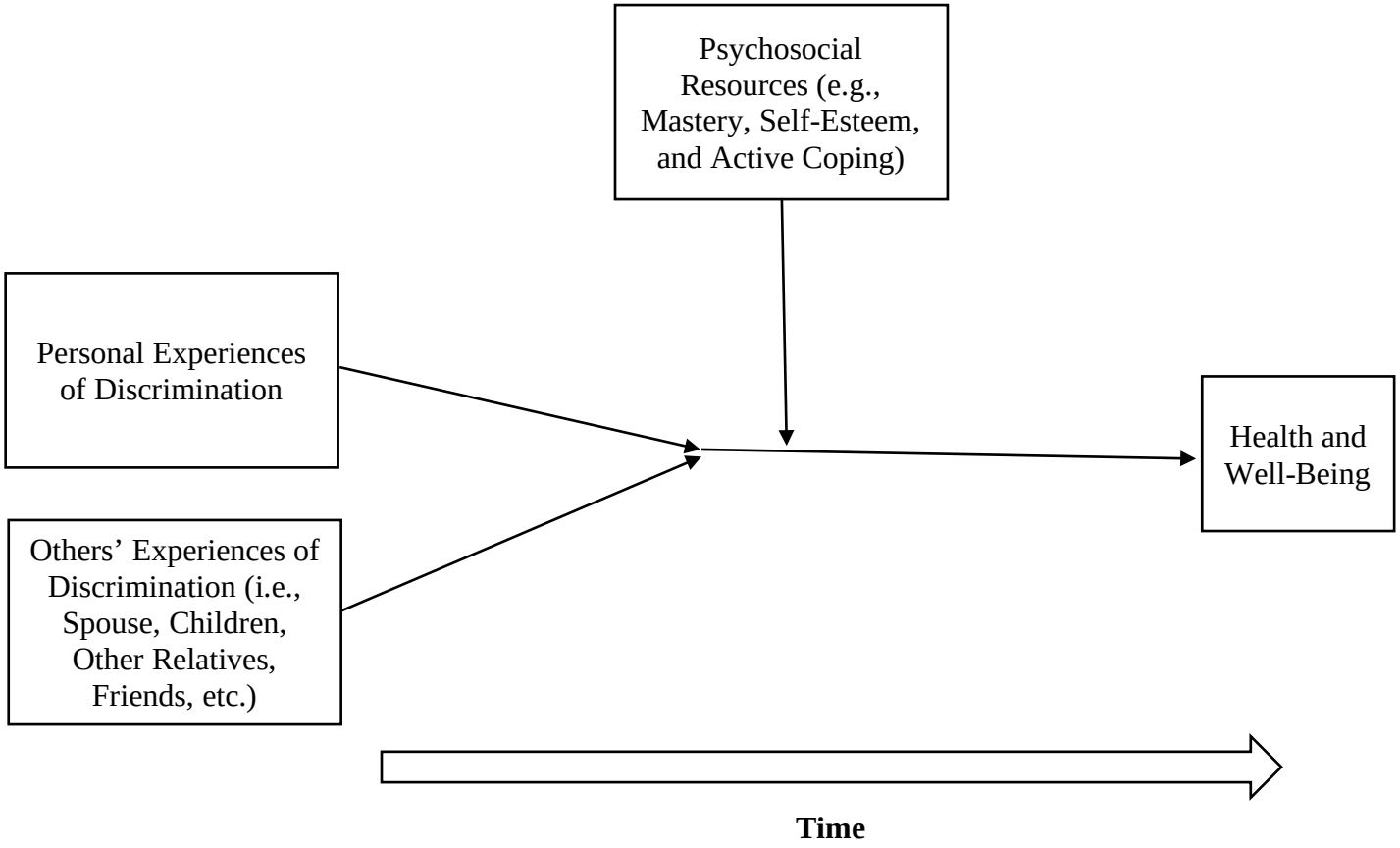

Figure 1.1
A Life Course Adapted Conceptual Model for Understanding the Biopsychosocial Effects of Vicarious Racism as a Social Stressor

Conceptual Model of the Biopsychosocial Effects of Vicarious Racism

This dissertation proposes a new conceptual model for understanding the effects of vicarious racism on the well-being of Black adults (Figure 1.1) that is largely based on the biopsychosocial model outlined by Clark and colleagues (1999), while employing adaptations from the race-related stress framework (Harrell 2000) and life course theory. It is important to note here that Figure 1 presents the simplified version of the model that will guide the key investigation for this dissertation. However, this section will briefly describe rationale for the proposed model that will be tested in the future.

Much like the model for perceived racism as a social stressor, which extended the work of the stress-coping model proposed by Lazarus and Folkman (1984), this new model also suggests that psychological and physiological stress reactivity may be induced as a result of the perception of an environmental stimulus as racist. Environmental stimuli that could potentially be perceived as racist may include being unfairly denied social mobility through jobs, or being unfairly targeted and harassed by law enforcement, or even receiving substandard treatment and services.

The perception of these stimuli as racist, according to the model, are influenced by constitutional, sociodemographic, and psychological and behavioral factors. Perceptions of racial discrimination have been empirically linked to constitutional, or inherent, factors such as skin tone (Keith and Herring 1991; Hersh 2011), although some findings are mixed (Goldsmith et al. 2006). Sociodemographic factors, such as socioeconomic status, age, and gender, are also factors that influence perceptions of racism. Black Americans with more privileged statuses and men tend to experience stronger perceptions of racial discrimination (Borrell et al. 2006; Carliner et al. 2016),

while older Blacks may perceive today's racism as less threatening compared to decades ago when they were younger. Perceptions of racism may also be influenced by psychological and behavioral factors, such as self-esteem, neuroticism, and anger expression or suppression.

The types of perception of the environmental stimuli (i.e., perception of racism, perception of different stressor, or no perception of racism or other stressor) serve as mediators in the conceptual model. Individuals who perceive situations as racist or stressful will be likely to engage in adaptive, or maladaptive coping responses to mitigate subsequent psychological and physiological stress responses. Conversely, individuals who do not perceive situations as racist or stressful will likely experience blunted or no stress reactivity. The resulting stress responses, or lack thereof, will directly impact the health outcomes of the individual over time. For this dissertation, the key outcomes will be mental health and well-being. Additionally, this new conceptual model includes vicarious racism, which had not been considered in previous models. Indeed, environmental stimuli can affect those close to the individual (i.e., spouse, child, other relative, friend), and the individual's well-being could potentially be impacted by their own appraisal of the situation that someone close to them may have experienced.

Research Questions and Hypotheses

Paper 1: What is the social epidemiology of personal and vicarious racial discrimination?

1. What factors (e.g., sociodemographic characteristics, discrimination stress exposure, other stress exposure, and social support) are associated with personal experiences of major discrimination?

   H1a: Respondents who are women will be less likely to report personal experiences of major discrimination.

H1b: Respondents who are younger will be more likely to report personal experiences of major discrimination.
H1c: Respondents with higher socioeconomic position will be more likely to report personal experiences of major discrimination.
H1d: Respondents who were living in a predominantly White neighborhood during the time of the study will be more likely to report personal experiences of major discrimination.
H1e: Respondents with higher racial identity will be more likely to report personal experiences of major discrimination.
H1f: Respondents who are exposed to more daily discrimination stress will be more likely to report personal experiences of major discrimination.
H1g: Respondents who are more exposed to other stressors (major life events, chronic strains, and recent life events) will be more likely to report personal experiences of major discrimination.

2. What factors (e.g., sociodemographic characteristics, discrimination stress exposure, other stress exposure, and social support) are associated with vicarious experiences of major discrimination?

   H2a: Respondents who are women will be more likely to report vicarious experiences of major discrimination.
   H2b: Respondents with higher socioeconomic position will be more likely to report vicarious experiences of major discrimination.
   H2c: Respondents who are married will be more likely to report vicarious experiences of major discrimination.
   H2d: Respondents who are parents will be more likely to report vicarious experiences of major discrimination.
   H2e: Respondents who were living in a predominantly White neighborhood during the time of the study will be more likely to report vicarious experiences of major discrimination.
   H2f: Respondents who have more family cohesion and pride will be more likely to report vicarious experiences of major discrimination.
   H2g: Respondents who have more support from friends will be more likely to report vicarious experiences of major discrimination.

3. Are the interactive effects of gender and marriage associated with vicarious experiences of major discrimination?

   H3: Respondents who are women and married will be more likely to report vicarious experiences of major discrimination.

Paper 2: Are secondhand experiences of major discrimination associated with less psychological distress, more psychological distress, or similar levels of psychological distress among Black adults relative to direct experiences of major discrimination?

1. What is the prevalence of direct and indirect major discriminatory experiences among Black adults?

   H4: Personal experiences of major discrimination will be more commonly reported than vicarious major discriminatory experiences.

2. Are vicarious major discriminatory experiences more strongly associated with psychological distress compared to personal major discriminatory experiences?

   H5: Vicarious major discriminatory experiences will be more strongly associated with psychological distress than personal major discriminatory experiences.

3. Does the relationship between secondhand major discriminatory experiences and psychological distress differ between the Black women and men in the sample?

   H6: The relationship between vicarious major discriminatory experiences and psychological distress will be stronger among the Black women in the sample.

Paper 3: Do psychosocial resources (e.g., mastery, self-esteem, and active coping) moderate the relationship between secondhand exposure to major discrimination?

1. What is the relationship between indirect exposure to major discriminatory experiences and aspects of mental health and well-being (e.g., life satisfaction, depressive symptoms, and anxiety symptoms) after accounting for psychosocial resources (e.g., mastery, self-esteem, and John Henryism active coping)?

   H7a: Vicarious experiences of major discrimination will be negatively associated with levels of life satisfaction.

   H7b: Vicarious experiences of major discrimination will be positively associated with depressive symptoms.

   H7c: Vicarious experiences of major discrimination will positively be associated with anxiety symptoms.

2. Will psychosocial resources be protective against the effects of major discrimination?

H8: Psychosocial resources (e.g., mastery, self-esteem, and John Henryism active coping) will not buffer the effects of major discrimination on any aspect of mental health or well-being (e.g., life satisfaction, depressive symptoms, and anxiety symptoms).

Outline of Dissertation

Chapter two investigates the social epidemiology of personal and vicarious racism among Black Americans. The goal of this study is to examine whether certain sociodemographic factors contribute to respondents' self-reports of personal and vicarious experiences of major discrimination. Multivariate logistic regression models were used to determine the key factors associated with self-reports of major discriminatory experiences among Black American adults. Additionally, the association between the interactive effects of gender and marital status and the likelihood of secondhand exposure to major discrimination was tested.

Chapter three assesses the prevalence of personal and vicarious experiences of major discrimination, while also comparing of the effects of the various forms of major discrimination on the respondents' levels of psychological distress. Despite the abundance of literature on how direct experiences of racial discrimination impact the health of Black Americans, few have considered how indirect exposure to discrimination can affect the mental health of Black Americans. Multivariate linear regression analyses were used to determine the relationship between different forms of racial discrimination and psychological distress among the full sample of Black adults. Furthermore, during the study, significance tests revealed differences in psychological distress between the men and women in the sample. Thus, this relationship was also examined among the subsamples of Black men and Black women.

Chapter four investigates the impact of indirect exposure to major discrimination on Black adults' life satisfaction, depressive symptoms, and anxiety symptoms. Additionally, this chapter examines whether certain psychosocial resources moderate the relationship between various vicarious experiences of major discrimination on the respondents' mental health and well-being. Secondhand discrimination is understudied and much is yet to be discovered about its effects on health through empirical investigations. Multivariate linear regression analyses were used to determine the nature of the relationship between the major discrimination and the mental health and well-being of the respondents.

Chapter five underscores the key findings from chapters two, three, and four and summarizes the main conclusions of the project. This chapter also provides suggestions for interventions aimed at reducing racial disparities in health.

REFERENCES

Armstead, Cheryl A., Kathleen A. Lawler, Gloria Gorden, John Cross, and Judith Gibbons. 1989. "Relationship of Racial Stressors to Blood Pressure Responses and Anger Expression in Black College Students." *Health Psychology*, 8(5): 541-556.

Barefoot, John C., Grant W. Dahlstrom, and Redford B. Williams. 1983. "Hostility, CHD Incidence, and Total Mortality: A 25-Year Follow-Up Study of 255 Physicians." *Psychosomatic Medicine*, 45(1): 59-63.

Barefoot, John C., Bercedis L. Peterson, W. Grant Dahlstrom, Ilene C. Siegler, Norman B. Anderson, Redford B. Williams Jr. 1991. "Hostility Patterns and Health Implications: Correlates of Cook-Medley Hostility Scale Scores in a National Survey." *Health Psychology*, 10(1): 18-24.

Borrell, Luisa N., Catarina I. Kiefe, David R. Williams, Ana V. Diez-Roux, and Penny Gordon-Larsen. 2006. "Self-Reported Health, Perceived Racial Discrimination, and Skin Color in African Americans in the CARDIA Study." *Social Science and Medicine*, 63: 1415-1427.

Boulter, Alexis C., Jacklyn Quinlan, Aida T. Miro-Herrans, Laurel N. Pearson, Nubiana L. Todd, HEAT Steering Committee, Clarence C. Gravlee, and Connie J. Mulligan. 2015. "Interaction of *Alu* Polymorphisms and Novel Measures of Discrimination in Association with Blood Pressure in African Americans Living in Tallahassee, Florida." *Human Biology*, 84(4): 295-305.

Braveman, Paula. 2014. "What is Health Equity: And How Does a Life-Course Approach Take Us Further Toward It?" *Maternal and Child Health Journal*, 18(2): 366-372.

Brondolo, Elizabeth, Erica E. Love, Melissa Pencille, Antoinette Schoenthaler, and Gbenga Ogedegbe. 2011. "Racism and Hypertension: A Review of the Empirical Evidence and Implications for Clinical Practice." *American Journal of Hypertension*, 24(5): 518-529.

Brosschot, Jos F., Suzanne Pieper, and Julian F. Thayer. 2005. "Expanding Stress Theory: Prolonged Activation and Perseverative Cognition." *Psychoneuroendocrinology*, 30(1): 1043-1049.

Brosschot, Jos F., and William Gerin, and Julian F. Thayer. 2006. "The Perseverative Cognition Hypothesis: A Review of Worry, Prolonged Stress-Related Physiological Activation, and Health." *Journal of Psychosomatic Research*, 60(2): 113-124.

Brown, Tony N. 2003. "Critical Race Theory Speaks to the Sociology of Mental Health: Mental Health Problems Produced by Racial Stratification." *Journal of Health and Social Behavior* 292-301.

Bullock, Samuel C., and Earline Houston. 1987. “Perceptions of Racism by Black Medical Students Attending White Medical School.” *Journal of the National Medical Association*, 79(6): 601-608.

Carliner, Hannahm, Erin Delker, David S. Fink, Katherine M. Keyes, and Deborah S. Hasin. 2016. “Racial Discrimination, Socioeconomic Position, and Illicit Drug Use.” *Social Psychiatry and Psychiatric Epidemiology*, 51(4): 551-560.

Chida, Yoichi, and Andrew Steptoe. 2008. “Positive Psychological Well-Being and Mortality: A Quantitative Review of Prospective Observational Studies.” *Psychosomatic Medicine*, 70(7): 741-756.

Clark, Rodney, Norman B. Anderson, Vernessa R. Clark, and David R. Williams. 1999. “Racism as a Stressor for African Americans: A Biopsychosocial Model.” *American Psychologist*, 54(10): 805-816.

Cole, Elizabeth R. and Safiya R. Omari. 2003. “Race, Class and the Dilemmas of Upward Mobility for African Americans”. *Journal of Social Issues*, 59(4):785-802.

Coll, Cynthia Garcia, Gontran Lamberty, Renee Jenkins, Harriet Pipes McAdoo, Keith Crnic, Barbara Hanna Wasik, and Heidie Vazquez Garcia. 1996. “An Integrative Model for the Study of Development Competencies in Minority Children.” *Child Development*, 67(5): 1891-1914.

Dannefer, Dale. 1987. “Aging as Intracohort Differentiation: Accentuation, the Matthew Effect, and the Life Course.” *Sociological Forum*, 2(2): 211-236.

Derogatis, Leonard R., Ronald S. Lipman, and Lino Covi. 1973. “The SCL-90: An Outpatient Psychiatric Rating Scale.” *Psychopharmacology Bulletin*, 9:13-28.

Derogatis, Leonard R., Karl Rickels, and Anthony F. Rock. 1976. “The SCL-90 and the MMPI: A Step in the Validation of a New Self-Report Scale.” *British Journal of Psychiatry*, 128: 280-289.

Derogratis, Leonard R., and Patricia A. Clearly. 1977. “Confirmation of the Dimensional Structure of the SCL-90: A Study in Construct Validation.” *Journal of Clinical Psychology*, 33(4): 981-989.

Diener, Ed, and Micaela Y. Chan. 2011. “Happy People Live Longer: subjective Well-Being Contributes to Health and Longevity.” *Applied Psychology: Health and Well-Being*, 3(1): 1-43.

DiPrete, Thomas A., and Gregory M. Eirich. 2006. “Cumulative Advantage as a Mechanism for Inequality: A Review of Theoretical and Empirical Developments.” *Annual Review of Sociology*, 32: 271-297.

Elder, Glen H. 1994. “Time, Human Agency, and Social Change: Perspectives on the Life Course.” *Social Psychology Quartely*, 57(1): 4-15.

Eliason, Scott R., Jeylan T. Mortimer, and Mike Vuolo. 2015. “The Transition to Adulthood: Life Course Structures and Subjective Perceptions.” *Social Psychology Quarterly*, 78(3): 205-227.

Fagundes, Christopher P., Ronald Glaser, and Janice K. Kiecolt-Glaser. 2013. “Stressful Early Life Experiences and immune Dysregulation across the Lifespan.” *Brain, Behavior, and Immunity*, 27C: 8-12.

Farmer, M. M., & Ferraro, K. F. 2005. “Are Racial Disparities in Health Conditional on Socioeconomic Status?” *Social Science & Medicine*, 60(1): 191-204.

Feagin, Joe R. 1991. “The Continuing Significance of Race: Antiblack Discrimination in Public Places.” *American Sociological Review*, 56(1): 101-116.

Gee, Gilbert C., Katrina M. Walsemann, and Elizabeth Brondolo. 2012. “A Life Course Perspective on How Racism May Be Related to Health Inequities.” *American Journal of Public Health*, 102: 967-974.

Geronimus, Arline T., Margaret Hicken, Danya Keene, and John Bound. 2006. “‘Weathering’ and Age Patterns of Allostatic Load Scores among Blacks and Whites in the United States.” *American Journal of Public Health*, 96(5): 826-833.

Goldsmith, Arthur, H., Darrick Hamilton, and William Darity Jr. 2006. “Shades of Discrimination: Skin Tone and Wages.” *The American Economic Review*, 96(2): 242-245.

Harrell, Shelly P. 2000. “A Multidimensional Conceptualization of Racism-Related Stress: Implications for the Well-Being of People of Color.” *American Journal of Orthopsychiatry*, 70(1): 42-57.

Harris, Kathleen Mullan. 2010. “An Integrative Approach to Health.” *Demography*, 47(1): 1-22.

Hersch, Joni. 2011. “Skin Color, Physical Appearance, and Perceived Discriminatory Treatment.” *The Journal of Socio-Economics*, 40, 671-678.

James, Sherman. 1994. “John Henryism and the Health of African-Americans.” *Culture, Medicine, and Psychiatry*, 18: 163-182.

Jackson, James S., Myriam Torres, Cleopatra H. Caldwell, Harold W. Neighbors, Randolph M. Nesse, Robert Joseph Taylor, Steve J. Trierweiler, and David R. Williams. 2004. "The National Survey of American Life: A Study of Racial, Ethnic and Cultural Influences on Mental Disorders and Mental Health." *International Journal of Methods in Psychiatry Research*, 13(4): 196-207

Kahneman, Daniel, Ed Diener, and Norbert Schwarz. 2003. *Well-Being: The Foundations of Hedonic Psychology*. Russell Sage Foundation; New York: 2003.

Keith, Verna M., and Cedric Herring. 1991. "Skin Tone and Stratification in the Black Community." *American Journal of Sociology*, 97(3): 760-778.

Kung, Hsiang-Ching, Donna L. Hoyert, Jiaquan Xu, and Sherry L. Murphy. 2008. "Deaths: Final Data for 2005. *National Vital Statistics Reports*, 56(10): 1-20.

Lantz, Paula M., James S. House, Richard P. Mero, and David R. Williams. 2005. "Stress, Life Events, and Socioeconomic Disparities in Health: results from the Americans' Changing Lives Study". *Journal of Health and Social Behavior*, 46: 272-88.

Lazarus, Richard S., and Susan Folkman. 1984. *Stress, Appraisal, and Coping*. Springer Publishing Company.

Merton, Robert K. 1988. "The Matthew Effect in Science, II: Cumulative Advantage and the Symbolism of Intellectual Property." *ISIS*, 79: 609-623.

McEwen, Bruce S. 1998. "Stress, Adaptation, and Disease: Allostasis and Allostatic Load." *Annals of the New York Academy of Sciences*, 840(1): 33-44.

Miller, Todd Q., Timothy W. Smith, Charles Turner, Margarita L. Guijarro, and Amanda J. Hallet. 1996. "Meta-Analytic Review of Research on Hostility and Physical Health." *Psychological Bulletin*, 119(2): 322-48.

Mouzon, Dawne. 2013. "Can Family Relationships Explain the Race Paradox in Mental Health?" *Journal of Marriage and Family*, 75: 470-485.

Mulligan, Connie J. 2016. "Early Environments, Stress, and the Epigenetics of Human Health." *Annual Review of Anthropology*, 45: 233-49.

Pattillo-McCoy, M. 1999a. *Black Picket Fences: Privilege and Peril among the Black Middle Class*. Chicago: University of Chicago Press.

Pearlin, Leonard I. 2010. "The Life Course and the Stress Process: Some Conceptual Comparisons." *Journal of Gerontology: Social Sciences*, 65B(2): 207-215.

Pearlin, Leonard I. 1981. "The Stress Process." *Journal of Health and Social Behavior*, 22(4): 337-356.

Petersen, Anne C., and Sheppard G. Kellam. 1977. “Measurement of the Psychological Well-Being of Adolescents: The Psychometric Properties and Assessment Procedures of the How I Feel.” *Journal of Youth and Adolescence*, 6(3): 229:247.

Priest, Naomi, Yin Paradies, Brigid Renerry, Mandy Truong, Saffron Karlsen, and Yvonne Kelly. 2012. “A Systematic Review of Studies Examining the Relationship between Reported Racism and Health and Wellbeing for Children and Young People.” *Social Science and Medicine*, 1-13.

Quinlan, Jacklyn, Laurel N. Pearson, Christopher J. Clukay, Miaisha M. Mitchell, Qasimah Boston, Clarence C. Gravlee, and Connie Mulligan. 2016. “Genetic Loci and Novel Discrimination Measures Associated with Blood Pressure Variation in African Americans Living in Tallahassee.” *PLoS ONE*, 11(12): e0167700. https://doi.org/10.1371/journal.pone.0167700.

Rosenberg, Morris, and Claire B. McCullough. 1981. “Mattering: Inferred Significance and Mental Health among Adolescents. *Research in Community and Mental Health*, 2: 163-182.

Roxburgh, Susan and Kelly Rhea MacArthur. 2014. “Childhood Adversity and Adult Depression among the Incarcerated: Differential Exposure and Vulnerability by Race/Ethnicity and Gender”. *Child Abuse and Neglect*, 38: 1409-1420.

Sanders-Phillips. 2009. “Racial Discrimination: A Continuum of Violence Exposure for Children of Color.” *Clinical Child and Family Psychology Review*, 12(2): 174-195.

Scherwitz, Larry, Laura Perkins, Margaret Chesney, and Glenn Hughes. 1991. “Cook-Medley Hostility Scale and Subsets: Relationship to Demographic and Psychosocial Characteristics in Young Adults in the CARDIA study. *Psychosomatic Medicine*, 53(1): 36-49.

Shonkoff, Jack P., W. Thomas Boyce, and Bruce S. McEwen. “Neuroscience, Molecular Biology, and the Childhood Roots of Health Disparities: Building a New Framework for Health Promotion and Disease Prevention.” *Journal of American Medical Association*, 301(21): 2252-2259.

Slopen, Natalie, Tene T. Lewis, Tara L. Gruenewald, Mahasin S. Mujahid, Carol D. Ryff, Michelle A. Albert, and David R. Williams. 2010. “Early life Adversity and Inflammation in African Americans and Whites in the Midlife in the United States Survey.” *Psychosomatic Medicine*, 72(7): 694-701.

Statistics, National Center for Health. Health, United States: With a Special Feature on Socioeconomic Status and Health. Hyattsville, MD: 2011.

Steffen, Patrick R., Maya McNeilly, Norman Anderson, and Andrew Sherwood. 2003. "Effects of Perceived Racism and Anger Inhibition on Ambulatory Blood Pressure in African Americans." *Psychosomatic Medicine*, 65(5): 746-750.

Taylor, Shelley E., Baldwin M. Way, and Teresa E. Seeman. 2011. "Early Adversity and Adult Health Outcomes." *Development and Psychopathology*, 23: 939-954.

Thoits, Peggy A. 1995. "Stress, Coping, and Social Support Processes: Where are We? What Next?" *Journal of Health and Social Behavior*, Extra Issue: 53-79.

Turner, R. Jay, and William R. Avison. 2003. "Status Variations in Stress Exposure: Implications for the Interpretation of Research on Race, Socioeconomic Status, and Gender." 2003. *Journal of Health and Social Behavior*, 44(4): 488-505.

Umberson, Debra, Kristi Williams, Patricia A. Thomas, Hui Liu, and Mieke Beth Thomeer. 2014. "Race, Gender, and Chains of Disadvantage: Childhood Adversity, Social Relationships, and Health." *Journal of Health and Social Behavior*, Vol. 55(1) 20-38.

U.S. Census Bureau. Statistical Abstract of the United States. 128. Washington, DC: 2009.

Utsey, Shawn O. 1999. "Development and Validation of a Short Form of the Index of Race-Related Stress (IRRS)-Brief Version." *Measurement and Evaluation in Counseling and Development*, 32(3): 149-167.

Williams, David R., Yan Yu, James S. Jackson, and Norman B. Anderson. 1997. "Racial Differences in Physical and Mental Health: Socio-Economic Status, Stress and Discrimination." *Journal of Health Psychology*. 2(3): 335-351.

Williams, David R., Hector M. Gonzalez, Harold Neighbors, Randolph Nesse, Jamie M. Abelson, Julie Sweetman, and James S. Jackson. 2007. "Prevalence and Distribution of Major Depressive Disorder in African Americans, Caribbean Blacks, and Non-Hispanic Whites." *Archives of General Psychiatry*, 64: 305-315.

Williams, David R., Hector M. Gonzalez, Stacey Williams, Selina A. Mohammed, Hashim Moomal, and Dan J. Stein. 2008. "Perceived Discrimination, Race and Health in South Africa." *Social Science and Medicine*, 67(3): 441-452.

Williams, David R., and Selina A. Mohammed. 2009. "Discrimination and Racial Disparities in Health: Evidence and Needed Research." *Journal of Behavioral Medicine*, 32(1): 1-38.

Williams, David R., Selina A. Mohammad, Jacinta Leavell, and Chiquita Collins. 2010. "Race, Socioeconomic Status and Health: Complexities, Ongoing Challenges and Research Opportunities." *Annals of the New York Academy of Sciences*, 1186: 69-101.

Williams, David R., Naomi Priest, and Norman Anderson. 2016. “Understanding Associations between Race, Socioeconomic Status and Health: Patterns and Prospects.” *Health Psychology*, 35(4): 407-411.

CHAPTER II

STUDY #1: THE SOCIAL DISTRIBUTION OF DIRECT AND INDIRECT EXPOSURE TO DISCRIMINATION AMONG BLACK ADULTS

Racial disparities in life chances are persistent and pervasive. The inequities are particularly prominent when assessing the health and longevity of individuals along racial lines. Racism has been identified as a significant social determinant of health and has garnered attention from researchers and professionals over the last several decades (Clark, Benkert, and Flack 2006; Harrell 2000; Hicken, Lee, and Hing 2018; Paradies 2006; Pascoe and Richman 2009; Williams and Williams-Morris 2000). Consequently, much focus has been given to the mental and physical health consequences of the overexposure to unfair treatment, or discrimination, experienced by racial and ethnic minorities over the life course (Banks, Kohn-Wood, and Spencer 2006; Bravemen et al. 2010; Carter 2007; Clark et al. 1999; Farmer, Wray, and Thomas 2019; Hudson et al. 2013; Kessler, Mickelson, and Williams 1999; Gee, Walsemann, and Brondolo 2012; Goosby et al. 2015; Lewis, Cogburn, and Williams 2015; Williams, Lawrence, and Davis 2019). While strides have been made to clarify the relationship between discrimination and health, the scope of this study has largely been limited to a single form of perceived discrimination, namely racial discrimination (Grollman 2012; Pascoe and Richman 2009). Furthermore, among this line of inquiry, studies have generally fallen short of acknowledging that perceived discrimination impacts not only the lives of those who directly experience it, but also the lives of their loved ones.

In recent years, researchers have emphasized the demand for a more comprehensive approach to examining the ubiquity of perceived discrimination

experiences, particularly among racial and ethnic minorities. Scholars have documented the need for developing an epistemology of discrimination and health that examines not only individuals' direct exposure to discrimination, but also their secondhand experiences of discrimination (Essed 1991; Harrell 2000; Gee, Walsemann, and Brondolo 2012; Goosby and Heidbrink 2013). A systematic review and meta-analysis of racism and health revealed that 79.9% of studies on discrimination and health from 1983-2013 were limited to examining the health consequences of direct exposure to unfair treatment, while the remaining percentage of studies investigated the effects of indirect exposure, internalized racism, and discrimination from multiple levels. Using a race-related stress framework, Harrell (2000) postulated that the "inclusion of vicarious experiences is critical in understanding the nature of racism's effect on individuals…" (p. 45, 2000). Similarly, using a life course perspective, Gee and colleagues (2012) later argued that "interventions against racism that are focused on a single individual are incomplete" (p. 968, 2012). Several scholars have highlighted the noxious health consequences of direct and, more recently, the indirect experiences of perceived discrimination (Bor et al. 2018; Boulter et al. 2015; Brondolo et al. 2009; Clark et al. 1999; Colen et al. 2019; Goosby, Cheadle, Mitchell 2018; Heard-Garris et al. 2018; Lewis, Cogburn, and Williams 2015; Martz et al. 2019; McFarland et al. 2018; Mouzon et al. 2017; Pachter et al. 2018; Quinlan et al. 2016; Sewell, Jefferson, and Lee 2016; Williams and Mohammed 2009).

While some target areas for understanding discrimination as it relates to health have been identified, the social epidemiology of these direct and indirect perceived experiences are less clear. For example, the social epidemiology of direct exposure to perceived discrimination has been well-established (Kessler, Mickelson, Williams 1999;

Pager and Shepherd 2009). However, social scientists still know very little about how *secondhand* exposure to discriminatory experiences are socially distributed across racial and ethnic minority populations. Additionally, increasingly more attention is being called to the work of disentangling within-group differences (Erving 2011) to improve our vexed understanding of certain racial health inequities, such as the "race paradox in mental health" (Brown 2003; Erving, Thomas, and Frazier 2018; Louie and Wheaton 2018; Mouzon 2013; Williams 2018).

Ultimately, the central goal of this study is to advance our knowledge beyond the research realm which will hopefully contribute to the development of a multilevel resilience model for individuals who are impacted by discrimination while eradicating racism. One of the first steps to achieving this goal is to provide an empirical foundation from which researchers may operate while studying these critical issues through the sociological lens. This research will examine the social distribution of personally and vicariously experienced major discrimination among Black adults from a community sample. The likelihood of reporting personal and vicarious experiences of major discrimination will be tested, and three research questions and hypotheses are developed and tested:

1. What factors (e.g., sociodemographic characteristics, discrimination stress exposure, other stress exposure, and social support) are associated with personal experiences of major discrimination?

   H1a: Respondents who are women will be less likely to report personal experiences of major discrimination.
   H1b: Respondents who are younger will be more likely to report personal experiences of major discrimination.
   H1c: Respondents with higher socioeconomic position will be more likely to report personal experiences of major discrimination.

H1d: Respondents who were living in a predominantly White neighborhood during the time of the study will be more likely to report personal experiences of major discrimination.
H1e: Respondents with higher racial identity will be more likely to report personal experiences of major discrimination.
H1f: Respondents who are exposed to more daily discrimination stress will be more likely to report personal experiences of major discrimination.
H1g: Respondents who are more exposed to other stressors (major life events, chronic strains, and recent life events) will be more likely to report personal experiences of major discrimination.

2. What factors (e.g., sociodemographic characteristics, discrimination stress exposure, other stress exposure, and social support) are associated with vicarious experiences of major discrimination?

   H2a: Respondents who are women will be more likely to report vicarious experiences of major discrimination.
   H2b: Respondents with higher socioeconomic position will be more likely to report vicarious experiences of major discrimination.
   H2c: Respondents who are married will be more likely to report vicarious experiences of major discrimination.
   H2d: Respondents who are parents will be more likely to report vicarious experiences of major discrimination.
   H2e: Respondents who were living in a predominantly White neighborhood during the time of the study will be more likely to report vicarious experiences of major discrimination.
   H2f: Respondents who have more family cohesion and pride will be more likely to report vicarious experiences of major discrimination.
   H2g: Respondents who have more support from friends will be more likely to report vicarious experiences of major discrimination.

3. Are the interactive effects of gender and marriage associated with vicarious experiences of major discrimination?

   H3: Respondents who are women and married will be more likely to report vicarious experiences of major discrimination.

BACKGROUND

The Significance of Perceived Discrimination among Black Americans

While race is often regarded as a salient predictor of poorer life chance outcomes, it is the unfair treatment, or discrimination, based on racial group membership through

which these outcomes are produced. Moreover, exposure to discrimination is not equally distributed among all groups. Findings from national survey data have shown that Black Americans tend to report more exposure to unfair treatment, as well as a higher frequency in exposure to perceived discrimination relative to non-Hispanic Whites (Kessler, Mickelson, and Williams 1999). Further findings from these data show that 89.7% of the Black respondents from the nationally representative sample attributed their perceived discrimination experiences to their race and ethnicity, while only 21% of Whites attributed their perceived discrimination experiences to their race (Kessler, Mickelson, and Williams 1999). Although the negative outcomes that are produced by discrimination are not limited to health, this dissertation will focus primarily on the relationship between discrimination and health.

In recent decades, scholars have asserted that discrimination has significant health implications for individuals. Researchers have documented the major pathways through which discrimination impacts health among Black Americans (Williams et al. 2019). For example, researches have asserted that Black Americans are uniquely burdened by the added stress of discrimination (Clark et al. 1999; Thoits 2010), which is a social stressor for racial and ethnic minorities. Race-related stress has been linked to several physical health outcomes that significantly influence the racial differences in mortality (Farmer, Wray, and Thomas 2019). Within the past two decades, social scientists have become more invested in revealing the weathering effects of discrimination by examining biomarkers (Geronimus et al. 2006). Findings have recently emerged showing that discrimination is associated with shorter telomere length among Black Americans

through direct exposure (Chae et al. 2020), and indirect exposure (McFarland et al. 2018).

Findings from meta-analysis (Paradies et al. 2015) indicate that both personally and vicariously experienced discrimination negatively impacts mental and physical health, suggesting that direct and indirect exposure to discrimination may yield the same consequences. However, vicarious discrimination experiences have not been examined as thoroughly as personal discrimination experiences and are less understood as a result. This study will help to improve the understanding of these processes by investigating the ways that personal and vicarious experiences of major discrimination are socially distributed among Black adults.

The Social Distribution of Perceived Discrimination

Despite the progress that researchers have made while investigating perceived discrimination, meta-analyses (e.g., Paradies 2006) have shown that the sociodemographic variations in self-reported racial discrimination are still not optimally understood. However, there are some general trends in the literature on exposure to perceived discrimination as it relates to different segments of the population. Along gender lines, Black men tend to report greater levels of exposure to discrimination (Borell et al. 2006; Carter 2007; Fischer and Shaw 1999; McCord and Ensminger 1997; Utsey et al. 2002), and these findings are consistent with the perspective that Black men are viewed as more threatening and are more likely to be targets of discrimination relative to Black women as a result of how they are perceived (Williams and Mohammed 2009). Systematic review (Paradies 2006) revealed that some studies show that the higher

prevalence of self-reported discrimination among men was a result of racism that occurred in specific settings such as at work or attempting to obtain a job, in educational settings, in money and finances, from law enforcement and the legal system, seeking medical treatment, or being threatened or harassed. Additionally, social scientists postulate that racism may be "gendered", and that Black women are exposed to distinctive forms of discrimination and oppression due to their social position at the intersection of marginalized statuses regarding race and gender (Essed 1991; Perry, Harp, and Oser 2013; Stevens-Watkins et al. 2014; Thomas, Witherspoon, and Speight 2008).

Along socioeconomic lines, reports of discrimination vary. Although findings are largely mixed regarding the relationship between socioeconomic position and self-reported discrimination (Paradies 2006; Williams and Mohammed 2009), some research has shown that higher socioeconomic position is associated with greater levels of self-reported racism (Borell et al. 2006; Feagin and Sikes 1994; Kessler et al. 1990; Pager and Sheperd 2008). Results from some studies have indicated that African Americans with higher levels of socioeconomic position tend to report more exposure to discrimination than those with less resources, perhaps because they may be more acutely aware of the "diminishing returns" they receive from their privileged statuses relative to non-Hispanic White Americans with similar levels of socioeconomic position (Jackson and Williams 2006). Moreover, Blacks Americans with higher socioeconomic position are more likely to live, work, and play in predominantly White spaces where the likelihood of exposure to discrimination is heightened (Feagin and Sikes 1994). Additionally, many of the sites for discriminatory experiences (e.g., places of employment, higher education, restaurants, hotels, airports, etc.) tend to be less accessible to Blacks with fewer socioeconomic

resources, leaving middle-class Blacks uniquely exposed to the possibility of being treated unfairly (Feagin 1991; 1992). Levels of racial centrality, or the extent to which individuals defines themselves regarding their race, has generally been found to be positively associated with self-reports of racial discrimination (Landrine and Klonoff 1996; Shelton and Sellers 2000).

Our understanding of exposure to discrimination based on sociodemographic lines leaves much room for improvement. While the standing work on perceived discrimination has been informative, this knowledge base remains bereft of studies that examine the indirect experiences of discrimination. More empirical investigations of the social distribution of various types of discrimination will help us to better understand the mechanisms through which discrimination negatively impacts the longevity of racial and ethnic minorities.

Discrimination and Other Stress Exposure among Black Americans

While it is paramount to include measures of major and everyday discriminatory experiences in research, social scientists must also consider that many other stressors may be influenced by discrimination. This is evident as there are several items from the Major Life Events (Turner and Avison 2003) and Chronic Strains scale (Wheaton 1994) that map onto items from the Major Discrimination survey instrument (Williams et al. 2008). For example, the Major Life Events scale asks respondents about stress related to their educational outcomes (e.g., failing a grade), while the Major Discrimination questionnaire tool asks the respondents about the unfair lack of support from their educators based on their social status. Additionally, the Chronic Strains scale asks

respondents about job-related stress (e.g., you want to change jobs but don't feel you can), while the Major Discrimination survey asks about the discrimination-related barriers to job security and upward mobility. Although these outcomes are not always attributable to racism, discrimination and stress researchers have argued that these items are not, and should not be considered, mutually exclusive (Pearlin et al. 2005; Williams and Mohammed 2009). Furthermore, previous work has demonstrated that relative to other groups, African Americans tend to be exposed to more psychosocial stressors and adverse experiences over the life course that are likely patterned by interpersonal and institutional racism. For example, past studies have shown that Blacks endure more exposure to economic hardships and neighborhood adversity that is driven by racism and discrimination based on their marginalized social status (Pager and Sheperd 2008; Pearlin et al. 2005; Williams and Mohammed 2009).

Discrimination may also be embedded in the mechanisms through which stressors may beget additional stressors. Stress proliferation theory asserts that exposure to one stressor may lead to the exposure to secondary stressors over time (McEwen and Seeman 1999; O'Rand 1996; Pearlin 2010). One example of this is problematic substance use as a coping mechanism for stress, which is significantly linked to exposure to psychosocial stressors according to a broad body of literature in the areas of stress and coping (Jacobsen et al. 2001; Leventhal and Clary 1980; Vujanovic et al. 2016; Wills and Shiffman 1985). Similarly, findings from previous studies have established a significant association between race-related stressors and poor health behaviors (i.e., substance use and misuse) among racial and ethnic minorities (Brown et al. 2019a; Carliner et al. 2016; Neblett, Terzian, and Harriott 2010; Stevens-Watkins et al. 2012). These findings

underscore the importance of recognizing how discriminatory experiences and other stressors are inextricably linked.

Although a strong conglomerate of empirical evidence exists showing the association between race-related stress and other stressors, there is a dearth of literature that examines this association from the lens of vicarious racism. Researchers have largely neglected studying the collateral damage of multilevel stressors that are structured by racism with few exceptions (Bor et al. 2018; Brown et al. 2019b; Sewell and Jefferson 2016). As a result, the mechanisms through which secondhand discrimination operate are still poorly understood.

Secondhand Discrimination Exposure and Social Support among Black Americans

At each stage of life, people's experiences of success and adversity impact the people with whom they are closely tied. This interconnectedness is referred to as the concept of "linked lives" by life course researchers (Elder 1994; Pearlin 2010). Thus, it stands to reason that individuals who have close ties with family and friends may be more likely to be indirectly exposed to stress resulting from discrimination and other race-related stress through their loved ones' experiences. However, social scientists are still building the empirical foundation for testing this theory, particularly as it relates to discrimination-related stress and health outcomes (Colen et al. 2019; McFarland et al. 2018). Social support is often discussed, and examined, as a vital component of the stress and coping process among Black Americans in the discrimination and stress literature (Benin and Keith 1995; Brondolo et al. 2009; Brown 2008). But less is known about how

higher levels of social support may potentially increase indirect exposure to race-related stressors for individuals.

Along a similar line of research, the role of marriage is largely understudied when predicting the likelihood that an individual will be exposed to secondhand discrimination stress. Moody, Brown, and Ciciurkaite (2019) examined the effects of partner stress on self-rated health among a community sample of older adults. They found that while the negative association between partner stress and self-rated health was only significant among the Black respondents in the sample, there was no relationship between race-based partner stress and self-rated health among any of the racial and ethnic groups in the sample. One limitation of the study, however, was that they only assessed these outcomes between racial and ethnic groups and did not examine the differences in outcomes that may have existed within each group. For example, it has been well-established that Black men tend to report more direct exposure to discrimination (Borell et al. 2006; Carter 2007; Fischer and Shaw 1999; McCord and Ensminger 1997). But, given that Black women are partnered with Black men in most samples, how might this affect their likelihood of being exposed to secondhand discrimination through their Black men partners? Further research is necessary to better understand how gender and marital status influence outcomes in direct and indirect exposure to discrimination and race-related stress.

The objectives of this study are 1) to determine what factors are associated with the direct and indirect exposure to major experiences of discrimination, and 2) to assess how the interactive effects of gender and marital status influence the likelihood of secondhand exposure to major discrimination among Black adults.

METHODS

Study Procedures and Sample

Data are derived from the Nashville Stress and Health Study (NSAHS), which is specifically aimed toward a greater understanding of Black-White and socioeconomic status disparities in health. The NSAHS is a random sample (N = 1252) of 627 Black men and women, and 625 White men and women residing within Davidson County, Tennessee, which includes and extends beyond the greater Nashville, Tennessee area. Nashville was selected as a site because it includes two large historically Black universities (Fisk and Tennessee State) in addition to the country's oldest historically Black medical school (Meharry Medical College). Subsequently, there was an increased likelihood that a representative sample of Black Americans would include individuals of higher socioeconomic position. The investigators contended that the process of disaggregating the health significance of race and socioeconomic status would require adequate representation of Black Americans of higher socioeconomic status.

There were 199 block groups within Davidson County that were randomly selected to obtain the sample. After Survey Sampling International Corporation provided 7000 randomly selected addresses, 3028 eligible households were revealed following a total of 6940 screens. Due to budget and time constraints, the researchers stopped short of screening the full 7,000 addresses. Four stratified samples of adults ages 25 to 65 were then drawn such that half of the individuals were Black and the other half were non-Hispanic White, with comparable numbers of men and women in each racial group. A portion of the block groups were stratified. Black households were oversampled as Black individuals compromise approximately 28% of Davidson County residents (according to

2010 Census data) as the researches sought to obtain a final sample with enough Black respondents to allow for robust within-group analyses by race. A sampling weight was constructed to account for the complex survey design and data collection process, and to increase confidence in the generalizability for the Black and White population aged 25-65 who resided in Davidson County during the time of the study. Specifically, non-response, on-cooperation, refusals, and non-contact during the screening and interviewing phases were all accounted for by this sampling weight.

After 2400 potential respondents were randomly sampled—one individual from each household—1252 participants successfully completed computer-assisted interviews with interviewers who were race-matched with the respondents and trained by the study investigators. The interviews were conducted in respondents' homes or on Vanderbilt's campus, and averaged about two hours and 45 minutes in length. Data collection lasted from April 2011 to January 2014. For the present study, a subsample of Black Americans will be used (N=627). The NSAHS data set was ideal for addressing the aims of this study because of its sufficient sample of Black Americans for examining gender and social class contrasts, as well as its unique discrimination measures, which will be discussed in the following section.

Measures

Key Outcome Variables. To capture the entire racial discrimination experience, multiple forms of racial discrimination were assessed including: personal experiences of major discrimination, and vicarious experiences of major discrimination (i.e., spousal, child, other relative and close friend). The various forms of major discrimination were all

measured based on the Major Experiences of Discrimination scale (Williams et al. 2008), which is a seven-item scale that includes “been unfairly fired or denied a promotion,” “been unfairly treated by the police,” and “been unfairly discouraged by teacher from pursuing a job/career.” Responses were recorded as “yes” or “no”. If respondents answered “Yes”, then they were asked to whom the discrimination occurred: (1) self, (2) spouse, (3) child, (4) other relative, or (5) close friend. For the present study, responses of “Yes” for (1) self were separated into a measure of Personal Experiences of Major Discrimination; responses of “Yes” for (2) spouse, (3) child, (4) relative, or (5) close friend were all combined to make a separate measure of Vicarious Experiences of Major Discrimination. For this study, the constructs of personal and vicarious experiences of major discrimination were dichotomized to measure whether individuals had been exposed to any exposure to these major discriminatory events in their lifetime (0=no, 1=yes).

Key Independent Variables. The Everyday Discrimination Scale was comprised of nine items such as “You are treated with less courtesy than other people” and “You receive worse service than other people at restaurants or Stores.” Other stressors were captured through the measures of major life events and chronic strains. Major life events were indexed with a 43-item inventory that assesses the lifetime occurrence of major and potentially traumatic stressors (Turner and Avison 2003). The measure includes items related to both violent and non-violent stressors (e.g., parental divorce, failing a grade in school), along with items concerning life traumas (e.g., rape, physical and emotional abuse, being injured with a weapon), witnessing violence, receiving information about bad events, and the death of relatives or close friends. Consistent with common practice,

each score is a straight count of the number of stressors reported. Chronic stressors (Wheaton 1994) were measured using a 41-item inventory (α=.86) that captures the daily and chronic stressors across several domains of life such as general strain (e.g., "You're trying to take on too many things at once"), employment strain (e.g., "You want to change jobs but don't feel you can"), relationship strain (e.g., "You have a lot of conflict with your partner"), and children (e.g., "A child's behavior is a source of serious concern for you"). Recent life event stressors were measured by 32 items, and respondents were asked to report if each event (e.g., "Did a child die," "Was there a marital separation or divorce," "Did someone have a major financial crisis," and "Was demoted at work or took a pay cut.") happened to them or someone close within the past 12 months.

Perceived neighborhood segregation was measured by a scale that asked respondents to indicate the racial composition of the neighborhood in which they currently live. Responses included (0) all Blacks, (1) mostly Blacks, (2) about half Blacks, (3) mostly Whites, and (4) almost all Whites. Family cohesion and pride (α=90) were measured by a scale that asked respondents to indicate the quality of the relationships within their family (e.g., "You really trust and confide in each other," "Family members feel loyal to the family" "You can express your feelings with your family"). Responses included (0) strongly disagree, (1) disagree, (2) agree, and (3) strongly agree. Friend social support (α=0.95) was measured by a scale that asked respondents about the quality of the relationship that they have with their friends (e.g., "You feel very close to your friends," "You have friends who would always take the time to talk over your problems, should you want to"). Responses included (0) not at all true for you, (1) somewhat true for you, (2) moderately true for you, and (3) very true for you.

Sociodemographic Characteristics. All analyses accounted for age, gender, socioeconomic position, marital status, parental status, and level of racial identity. Gender was coded such that 1=women and 0=men. Age is employed as a continuous measure in years. Socioeconomic position was calculated using the respondents' education level (number of years of education completed), annual household income, and an occupational prestige score which was estimated using the NAM scoring system (Nam and Boyd 2004). The three estimates were standardized and summed to create a score. During data collection, respondents reported whether they lived with their spouse (0=not living with a spouse, 1=married and living with a spouse), parental status (0=no children, 1=have children), and their level of racial identity centrality (1=strongly disagree to 7=strongly agree; α=0.80).

Analytic Strategy

Prior to the analyses, the data were properly screened and assessed to ensure that they were congruent with linear regression assumptions (Mertler and Vannatta 2013). Several steps were necessary to address the objectives of the current study. First, the study variable's weighted means and proportions (Table 2.1) were calculated for the sample of Black adults (N=627). Second, bivariate correlations (Table 2.2) were conducted after calculating the Variance Inflation Factor (Stevens 2001) to ensure that multicollinearity was not an issue. The bivariate correlation tests revealed moderate to low associations between the variables in the study, confirming that the variables were not highly correlated. Third, multiple multivariate logistic regressions analyses were conducted to assess the likelihood of the respondents' self-reporting of personal (Table

2.3) and vicarious experiences of major discrimination (Table 2.4) among the sample. Lastly, an interaction term was created to assess the interactive effects of gender and marital status (Table 2.5) among the same models. In Model 1 of the analyses, the odds of the respondents' self-reports of personal and vicarious experiences of major discrimination were tested after accounting for a variety of sociodemographic factors (gender, age, socioeconomic position, parental status, marital status, and the racial composition of the neighborhoods in which the respondents currently reside). In Model 2 of the analyses, the odds of the respondents' self-reports of personal and vicarious experiences of discrimination were tested after accounting for race and discrimination-related factors (the respondents' level of racial identity and self-reports of everyday discrimination experiences). In Model 3 of the analyses, the odds of the respondents' self-reports of personal and vicarious experiences of major discrimination were tested after accounting for the respondents' exposure to social stressors (major life events, chronic strains, and recent life events). In Model 4 of the analyses, the odds of the respondents' self-reports of personal and vicarious experiences of major discrimination were tested after accounting for aspects of social support that the respondents experience (family cohesion and pride, and friend social support). For the analyses, sociodemographic factors, race and discrimination-related factors, stress exposure, and social support were all added to the models sequentially. Sample weights were employed during the analyses to avoid potential oversampling bias in an attempt to account for the disparities between groups. All analyses were performed with Stata, version 14 to account for the complex survey design and sample weighting of the Nashville Stress and Health Study.

RESULTS

Descriptive Statistics

Table 2.1: Means and Proportions of Sample Characteristics (N=627)

Characteristics	Means/%	SD	Range
Outcome Variables			
Major Discrimination-Personal (Yes)	57%	-	0-1
Major Discrimination-Vicarious (Yes)	49%	-	0-1
General Stress Exposure			
Major Life Events	8.89	5.11	0-27
Chronic Strains	29.67	9.95	9-64
Recent Life Events	2.07	2.24	0-15
Other Discrimination Exposure			
Everyday Discrimination	9.91	1.09	0-34
Sociodemographic			
Gender (Women)	53%	-	0-1
Age (Years)	46.19	11.21	22-69
Socioeconomic Position	-0.36	0.74	-2.63-1.79
Married (Yes)	30%	0.46	0-1
Parent (Yes)	80%	0.40	0-1
Level of Racial Identity	64.18	9.56	17-77
Neighborhood Racial Composition	0.68	1.90	0-8
Social Support			
Family Cohesion/Pride	12.87	3.72	0-18
Support from Friends	17.30	6.70	0-24

Socioeconomic Position mean reflects the standardized score based on the calculation developed by Nam and Boyd (2004).
Higher scores for Neighborhood Racial Composition indicate that respondents' current neighborhoods are predominantly White.

Table 2.1 presents the sample characteristics of the Black respondents from the Nashville Stress and Health Study. The average age of the respondents in this sample was 46 years and about 53% of the participants in the sample were women. About 30% of the respondents in the sample were married, and about 80% of the respondents were parents.

Table 2.2: Bivariate Correlation Matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Major Discrimination - Self	1.000														
2. Major Discrimination - Vicarious	0.002	1.000													
3. Gender (Women)	-0.081*	0.076	1.000												
4. Age	-0.106*	-0.108*	-0.061	1.000											
5. Socioeconomic Position	0.058	0.181*	-0.029	-0.107*	1.000										
6. Married (Yes)	-0.003	0.075	-0.303*	0.071	0.193*	1.000									
7. Parent (Yes)	-0.052	-0.088*	-0.018	0.145*	-0.188*	0.164*	1.000								
8. Neighborhood Racial Comp.	0.011	0.082*	0.046	-0.027	0.059	0.022	-0.072	1.000							
9. Level of Racial Identity	-0.030	-0.013	-0.121*	0.204*	-0.060	0.037	0.064	-0.097*	1.000						
10. Everyday Discrimination	0.310*	0.127*	-0.027	-0.102*	-0.033	-0.044	-0.097*	-0.035	0.066	1.000					
11. Major Life Events	0.334*	0.084*	-0.007	-0.154*	-0.072	0.006	0.068	0.065	-0.123*	0.290*	1.000				
12. Chronic Strains	0.162*	0.142*	0.063	-0.240*	0.079*	0.243*	0.162*	-0.014	-0.035	0.251*	0.295*	1.000			
13. Recent Life Events	0.269*	0.146*	0.171*	-0.213*	0.005	-0.053	-0.034	0.001	-0.154*	0.240*	0.419*	0.306*	1.000		
14. Family Cohesion/Pride	-0.114*	-0.018	-0.095*	0.107*	0.067	0.080*	0.086*	-0.022	0.149*	-0.265*	-0.310*	-0.103*	-0.166*	1.000	
15. Support from Friends	-0.022	0.093*	0.082*	-0.039	0.201*	-0.003	-0.048	0.090*	0.068	-0.152	-0.189*	-0.150*	-0.042	0.223*	1.000

* $p < 0.05$

Multivariate Analyses

Table 2.3: Logistic Regression Odds Ratios for Self-Reports of Personally Experienced Major Discrimination

	Model 1	*Model 2*	*Model 3*	*Model 4*
Sociodemographic Characteristics				
Gender (Women)	0.659*	0.616*	0.517**	0.513***
	(-2.10)	(-2.36)	(-3.23)	(-3.42)
Age	0.993	0.998	1.007	1.007
	(-0.57)	(-0.13)	(0.59)	(0.59)
Socioeconomic Position	1.105	1.176	1.133	1.160
	(0.50)	(0.69)	(0.58)	(0.72)
Married (1=Yes, 0=No)	0.745	0.715*	0.642*	0.653*
	(-1.89)	(-2.06)	(-2.26)	(-2.36)
Parent (1=Yes, 0=No)	1.043	1.250	1.121	1.140
	(0.19)	(0.93)	(0.39)	(0.46)
Neighborhood Racial Compositio	1.017	1.008	0.986	0.985
	(0.20)	(0.09)	(-0.13)	(-0.14)
Racial Identity		0.993	0.999	1.000
		(-0.36)	(-0.06)	(-0.01)
Discrimination Stress Exposure				
Daily Discrimination		1.118***	1.099***	1.095***
		(4.83)	(3.89)	(3.59)
Other Stress Exposure				
Major Life Events			1.133**	1.127**
			(2.92)	(2.96)
Chronic Strains			1.007	1.006
			(0.41)	(0.37)
Recent Life Events			1.144*	1.147*
			(2.12)	(2.30)
Social Support				
Family Cohesion/Pride				0.965
				(-0.97)
Support from Friends				0.995
				(-0.27)

N	627	627	627	627

Exponentiated coefficients; *z* statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 2.3 presents the results from the multivariate logistic regression analyses of the self-reporting of personal experiences of major discrimination among the full sample of Black adult respondents (N=627). After accounting for sociodemographic factors, results revealed that women in the sample had lower odds of reporting having personally experienced major discrimination than the men in the sample, and this relationship was maintained throughout the rest of the analysis. Findings from Model 2 showed that being married was associated with lower odds of reporting direct discrimination after accounting for everyday discrimination. Additionally, more reports of everyday discrimination experiences were associated with higher odds of reporting personal experiences of major discrimination among the respondents. In Model 3, after accounting for the respondents' stress exposure, results indicated that greater exposure to major life events and recent life events was associated with higher odds of reporting personal experiences of major discrimination. In Model 4, after accounting for the respondents' social support, results showed that women and married respondents had lower odds of reporting personal discrimination experiences, while greater exposure to everyday experiences of discrimination, major life events, and recent life events were associated with higher odds of reports of personal experiences of major discrimination.

Table 2.4: Logistic Regression Odds Ratios for Self-Reports of Vicariously Experienced Major Discrimination

	Model 1	*Model 2*	*Model 3*	*Model 4*
Sociodemographic Characteristics				
Gender (Woman)	1.795*	1.817**	1.754*	1.651*
	(2.48)	(2.82)	(2.52)	(2.40)
Age	0.981	0.982	0.984	0.987
	(-1.01)	(-0.96)	(-0.78)	(-0.60)
Socioeconomic Position	1.731***	1.809***	1.808***	1.638**
	(3.45)	(3.64)	(3.44)	(3.02)
Married (1=Yes, 0=No)	1.307	1.313	1.267	1.231
	(1.17)	(1.12)	(1.00)	(0.93)
Parent (1=Yes, 0=No)	0.854	0.936	0.886	0.879
	(-0.58)	(-0.25)	(-0.41)	(-0.49)
Neighborhood Racial Composition	1.157	1.160	1.159	1.159
	(1.64)	(1.60)	(1.57)	(1.57)
Racial Identity		1.007	1.009	1.006
		(0.43)	(0.55)	(0.37)
Discrimination Stress Exposure				
Daily Discrimination		1.053**	1.043*	1.049*
		(2.91)	(2.39)	(2.35)
Other Stress Exposure				
Major Life Events			1.034	1.045
			(1.06)	(1.75)
Chronic Strains			1.005	1.009
			(0.44)	(0.92)
Recent Life Events			1.034	1.026
			(0.69)	(0.52)
Social Support				
Family Cohesion/Pride				1.026
				(0.56)
Support from Friends				1.055***
				(4.51)
N	627	627	627	627

Exponentiated coefficients; *z* statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 2.5: Logistic Regression Odds Ratios for Self-Reports of Vicariously Experienced Major Discrimination and the Interactive Effects of Gender and Marital Status

	Model 1	*Model 2*	*Model 3*	*Model 4*	*Model 5*
Sociodemographic Characteristics					
Gender (Women)	1.795*	1.817**	1.754*	1.651*	1.139
	(2.48)	(2.82)	(2.52)	(2.40)	(0.42)
Age	0.981	0.982	0.984	0.987	0.989
	(-1.01)	(-0.96)	(-0.78)	(-0.60)	(-0.56)
Socioeconomic Position	1.731***	1.809***	1.808***	1.638**	1.567**
	(3.45)	(3.64)	(3.44)	(3.02)	(2.82)
Married (1=Yes, 0=No)	1.307	1.313	1.267	1.231	0.757
	(1.17)	(1.12)	(1.00)	(0.93)	(-0.73)
Parent (1=Yes, 0=No)	0.854	0.936	0.886	0.879	0.851
	(-0.58)	(-0.25)	(-0.41)	(-0.49)	(-0.65)
Neighborhood Racial Composition	1.157	1.160	1.159	1.159	1.144
	(1.64)	(1.60)	(1.57)	(1.57)	(1.42)
Racial Identity		1.007	1.009	1.006	1.003
		(0.43)	(0.55)	(0.37)	(0.19)
Discrimination Stress Exposure					
Daily Discrimination		1.053**	1.043*	1.049*	1.048*
		(2.91)	(2.39)	(2.35)	(2.33)
Major Life Events			1.034	1.045	1.050*
			(1.06)	(1.75)	(2.09)
Chronic Strains			1.005	1.009	1.011
			(0.44)	(0.92)	(1.15)
Recent Life Events			1.034	1.026	1.019
			(0.69)	(0.52)	(0.40)
Social Support					
Family Cohesion/Pride				1.026	1.018
				(0.56)	(0.39)
Support from Friends				1.055***	1.056***
				(4.51)	(4.72)
Gender and Marital Status Interaction					
Gender (Woman) x Married					2.994*
					(2.09)

N	627	627	627	627	627

Exponentiated coefficients; *z* statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 2.4 presents the results from the multivariate logistic regression analyses of the self-reporting of vicarious experiences of major discrimination among the full sample of Black adult respondents. In Model 1, after accounting for sociodemographic factors, results revealed that the women in the sample had higher odds of reporting vicariously experienced major discrimination. Additionally, higher socioeconomic position was associated with higher odds of reports of vicarious discrimination exposure among the respondents. In Model 2, after accounting for racial identity and everyday discrimination, both higher socioeconomic position and more reports of everyday discrimination experiences were associated with higher odds of reporting vicarious discrimination experiences. In Model 3, after accounting for additional social stress exposure, socioeconomic position and daily discrimination maintained their positive relationships with reports of vicarious discrimination. In Model 4, results indicated that respondents who reported greater levels of support from friends had higher odds of reporting vicarious discrimination after accounting for social support. Socioeconomic position and everyday discrimination maintained a positive relationship with vicarious discrimination throughout each model among the full sample of Black adults. Table 2.5 presents the odds ratios for self-reporting vicarious discrimination experiences after accounting for the interactive effects of gender and marital status. Results indicated that married women were about three times more likely to report vicarious experiences of discrimination relative to others after accounting for sociodemographic factors, discrimination and other stress exposure, and social support.

DISCUSSION

This study examines important direct and indirect discrimination exposure-related factors while drawing attention to gender differences in self-reported discrimination experiences within the Black adult population. Moreover, this empirical investigation considers how the experience of individuals whose lives are "linked" together are shaped by the adversity of those who are closely tied to them. Using data from the Nashville Stress and Health Study, the analyses revealed results that largely support the hypotheses for the study. Overall, findings from this study highlight the significance of examining the social distribution of discrimination exposure among African Americans which will improve our understanding of racial inequities.

First, self-reports of everyday discrimination were associated with higher odds of reporting personally and vicariously experienced major discrimination among the sample of Black adults. Additionally, exposure to other life adversity (i.e., major life events and recent life events) was associated with a greater likelihood of reporting personally experienced major discrimination. This suggests that Black individuals who are experiencing various forms of adversity are likely enduring the effects of direct exposure to major discrimination as well, which is consistent with the literature on racial inequities (Gee, Walsemann, and Brondolo 2012; Williams, Priest, and Anderson 2016). Additionally, higher socioeconomic position was associated with greater odds of reporting vicarious experiences of discrimination among the sample of Black adults. Conversely, there was no significant relationship between socioeconomic position and reports of personally experienced major discrimination, which may suggest that direct exposure to major discrimination was ubiquitous for the Blacks in the sample regardless

of socioeconomic resources. Moreover, the mechanisms that drive indirect exposure to major discrimination may operate differently for the respondents in this sample.

Second, the respondents in the sample who had greater social support from friends had higher odds of reporting vicarious discrimination experiences, which offers partial evidence for the study's hypotheses. This finding is likely due to the propensity with which supportive friends may share their adverse experiences with one another. Furthermore, in response to potentially stressful experiences, such as discrimination, seeking social support is a common coping mechanism among Black Americans (Benin and Keith 1995; Brondolo et al. 2009; Brown 2008). Consistent with life course framework concept of "linked lives", this finding underscores the notion that individuals may be impacted by the experiences of the people they share ties with.

Third, when gender was accounted for, the results indicated that Black women were less likely to report directly experiencing major personal discrimination compared to Black men. This is consistent with findings from previous studies on direct exposure to discrimination (Borell et al. 2006; Carter 2007; Fischer and Shaw 1999; Kessler, Mickelson, and Williams 1999; McCord and Ensminger 1997; Utsey et al. 2002). Conversely, Black women were more likely to report indirect exposure to major discrimination compared to the Black men in the sample. This finding emphasizes the differences in roles that men and women tend to play in for the people around them. Extensive literature has documented the social implications for these roles, asserting that women are usually burdened with the "cost of caring" (England and Folbre 1999; Kessler and McLeod 1984; Smith and Rose 2011) and serving as a source of empathy for individuals who are enduring adversity. Moreover, this finding suggests that the salience

of discrimination among Black women is underestimated when secondhand exposure to discrimination is not considered. Lastly, the interactive effects of being a woman and married were associated with significantly higher odds of reporting vicariously experienced major discrimination among the respondents in the sample. Given that Black men are more likely to be the targets of discrimination, and Black women are more likely to marry Black men (Banks 2011), it stands to reason that Black women who marry Black men would be more likely to report vicarious experiences of discrimination. This finding emphasizes the significance of assessing discrimination based on the interactive effects of gender and other sociodemographic factors.

Study Limitations and Implications for Future Research

Although this study contributes meaningfully to the literature on discrimination, there were several limitations. First, the data were derived from a community sample that may not be nationally representative of Black Americans. This may somewhat constrain the generalizability of the findings; however, the sample was randomly selected increasing generalizability within targeted geographic region. Second, the data were collected cross-sectionally, which limits the ability to determine causal relationships among the variables in the array of models. Third, only the Major Experiences of Discrimination scale was life-course adapted to include the linked lives aspect of racism. As a result, vicarious Every Day Discrimination experiences could not be assessed among this sample.

Future studies should consider the impact of these discrimination experiences on health, and how outcomes may be shaped by processes that are specific to gender and

other sociodemographic factors. A wealth of empirical evidence has documented how personally experienced discrimination negatively impacts the health of African Americans (Bravemen et al. 2010; Clark et al. 1999; Hudson et al. 2013; Kessler, Mickelson, and Williams 1999; Gee, Walsemann, and Brondolo 2012; Goosby et al. 2015; Lewis, Cogburn, and Williams 2015; Williams and Mohammed 2009). However, the effects of indirect exposure to discrimination are still poorly understood. Furthermore, the processes through which vicariously experienced discrimination affects individuals warrant clarification. Specifically, future research should examine how Black women may be disproportionately exposed to secondhand discrimination as a result of their social roles as caregivers. Recent research has examined how mothers may be impacted by the discriminatory experiences of their children (Colen et al. 2019), but more empirical evidence is needed.

Despite the limitations of this investigation, the present study provides a unique examination of how Black Americans differ with regards to their various discrimination experiences. Ultimately, the findings of this study suggest Blacks Americans are not uniformly exposed to major discrimination. Specifically, Black women may be uniquely burdened with the indirect effects of discrimination. Much more attention is needed in this relatively understudied area to provide more adequate and comprehensive measurements of race-related stressors, and the understanding of their health effects within the context of other psychosocial stressors.

REFERENCES

Banks, Kira H., Laura P. Kohn-Wood, and Michael Spencer. 2006. "An Examination of the African American Experience of Everyday Discrimination and Symptoms of Psychological Distress." *Community Mental Health Journal*, 42(6): 555-570.

Banks, Ralph R. 2011. *Is Marriage for White People?: How the African American Marriage Decline Affects Everyone*. Dutton/Penguin Books.

Benin, Mary, and Verna Keith. 1995. "The Social Support of Employed African American and Anglo Mothers." *Journal of Family Issues*, 16(3): 275-2897.

Bor, Jacob, Atheendar S. Venkataramani, David R. Williams, and Alexander C. Tsai. 2018. "Police Killings and Their Spillover Effects on the Mental Health of Black Americans: A Population-Based, Quasi-Experimental Study." *Lancet*, 392: 302-310.

Borrell, Luisa N., Catarina I. Kiefe, David R. Williams, Ana V. Diez-Roux, and Penny Gordon-Larsen. 2006. "Self-Reported Health, Perceived Racial Discrimination, and Skin Color in African Americans in the CARDIA Study." *Social Science and Medicine*, 63: 1415-1427.

Boulter, Alexis C., Jacklyn Quinlan, Aida T. Miro-Herrans, Laurel N. Pearson, Nubiana L. Todd, HEAT Steering Committee, Clarence C. Gravlee, and Connie J. Mulligan. 2015. "Interaction of *Alu* Polymorphisms and Novel Measures of Discrimination in Association with Blood Pressure in African Americans Living in Tallahassee, Florida." *Human Biology*, 84(4): 295-305.

Braveman, Paula A., Catherine Cubbin, Susan Egerter, David R. Williams, and Elsie Pamuk. 2010. "Socioeconomic Disparities in Health in the United States: What the Patterns Tell Us." *American Journal of Public Health*, 100: S186-S196.

Brondolo, Elizabeth, Nisha Brady ver Halen, Melissa Pencille, Danielle Beatty, and Richard J. Contrada. 2009. "Coping with Racism: A Selective Review of the Literature and Theoretical and Methodological Critique." *Journal of Behavioral Medicine*, 32: 64-88.

Brown, Robyn L., Judith A. Richman, Myles D. Moody, and Kathleen M. Rospenda. 2019a. "Alcohol-Related Effects of POST-9/11 Discrimination in the Context of the Great Recession: Race/Ethnic Variation." *Addictive Behaviors*, 93: 154-157.

Brown, Robyn L., Judith A. Richman, Myles D. Moody, and Kathleen M. Rospenda. 2019b. "The Enduring Mental Health Effects of Post-9/11 Discrimination in the Context of the Great Recession: Race/Ethnic Variation." *Society and Mental Health*, 20(10): 1-13.

Brown, Tony N. 2003. "Critical Race Theory Speaks to the Sociology of Mental Health: Mental Health Problems Produced by Racial Stratification." *Journal of Health and Social Behavior* 292-301.

Brown, Danice L. 2008. “African American Resiliency: Examining Racial Socialization and Social Support as Protective Factors.” *Journal of Black Psychology*, 34(1): 32-48.

Carliner, Hannah, Erin Delker, David S. Fink, Katherin M. Keyes, and Deborah S. Hasin. 2016. “Racial Discrimination, Socioeconomic Position, and Illicit Drug Use among US Blacks”. *Social Psychiatry and Psychiatric Epidemiology*, Volume 51, issue 4, pp. 551-560.

Carter, Robert T. 2007. “Racism and Psychological and Emotional Injury: Recognizing and Assessing Race-Based traumatic Stress.” *The Counseling Psychologist*, 35(13): 13-105.

Chae, David H., Yijie Wang, Connor D. Martz, Natalie Slopen, Tiffany Yip, Nancy E. Adler, Thomas E. Fuller-Rowell, Jue Lin, Karen A. Matthews, Gene H. Brody, Erica C. Spears, Eli Puterman, and Elissa S. Epel. 2020. “Racial Discrimination and Telomere Shortening among African Americans: The Coronary Artery Risk Development in Young Adults (CARDIA) Study.” *Health Psychology*, 39(3): 209-219.

Clark, Rodney, Norman B. Anderson, Vernessa R. Clark, and David R. Williams. 1999. “Racism as a Stressor for African Americans: A Biopsychosocial Model.” *American Psychologist*, 54(10): 805-816.

Clark, Rodney, Ramona A. Benkert, and John M. Flack. 2006. “Large Arterial Elasticity Varies as a Function of Gender and Racism-Related Vigilance in Black Youth.” *Journal of Adolescent Health*, 39: 562-569.

Colen, Cynthia G., Qi Li, Corrine Reczek, and David R. Williams. 2019. “The Intergenerational Transmission of Discrimination: Children’s Experiences of Unfair Treatment and Their Mothers’ Health at Midlife.” *Journal of Health and Social Behavior*, 60(4): 474-492.

Elder, Glen H. 1994. “Time, Human Agency, and Social Change: Perspectives on the Life Course.” *Social Psychology Quarterly*, 57(1): 4-15.

England, Paula, and Nancy Folbre. 1999. “The Cost of Caring.” *The Annals of the American Academy of Political and Social Science*, 561: 39-51.

Erving, Christy L. 2011. “Gender and Physical Health: A Study of African American and Caribbean Black Adults.” *Journal of Health and Social Behavior*, 52(3): 383-399.

Erving, Christy L., Courtney S. Thomas, and Cleothia Frazier. 2018. “Is the Black-White Mental Health Paradox Consistent Across Gender and Psychiatric Disorders?” *American Journal of Epidemiology*, 188(2): 314-322.

Essed, Philomena. 1991. *Understanding Everyday Racism*, Newbury Park, CA: Sage.

Farmer, Heather R., Linda A. Wray, and Jason R. Thomas. 2019. “Do Race and Everyday Discrimination Predict Mortality Risk? Evidence from the Health and Retirement Study.” *Gerontology and Geriatric Medicine*, 5: 1-9.

Feagin, Joe R. 1991. “The Continuing Significance of Race: Antiblack Discrimination in Public Places.” *American Sociological Review*, 56(1): 101-116.

Feagin, Joe R. 1992. “The Continuing Significance of Racism: Discrimination Against Black Students in White Colleges.” *Journal of Black Studies*, 22(4): 546-578.

Feagin, Joe R., and Melvin P. Sikes. 1994. *Living with Racism: The Black Middle-Class Experience*. Beacon Press.

Fischer, Ann R., and Christina M. Shaw. 1999. African Americans’ Mental Health and Perceptions of Racist Discrimination: The Moderating Effects of Racial Socialization Experiences and Self-Esteem.” *Journal of Counseling Psychology*, 46(3): 395-407.

Gee, Gilbert C., Katrina M. Walsemann, and Elizabeth Brondolo. 2012. “A Life Course Perspective on How Racism May Be Related to Health Inequities.” *American Journal of Public Health*, 102: 967-974.

Geronimus, Arline T., Margaret Hicken, Danya Keene, and John Bound. 2006. “‘Weathering’ and Age Patterns of Allostatic Load Scores among Blacks and Whites in the United States.” *American Journal of Public Health*, 96(5): 826-833.

Goosby, Bridget J., and Chelsea Heidbrink. 2013. “Transgenerational Consequences of Racial Discrimination for African American Health.” *Sociology Compass*, 7(8): 630-643.

Goosby, Bridget J., Sarah Malone, Elizabeth Richardson, Jacob E. Cheale, and Deadric Williams. 2015. “Perceived Discrimination and Markers of Cardiovascular Risk among Low-Income African American Youth.” *American Journal of Human Biology*, 27(4): 546-552.

Goosby, Bridget J., Jacob E. Cheadle, and Colter Mitchell. 2018. “Stress-Related Biosocial Mechanisms of Discrimination and African American Health Inequities.” *Annual Review of Sociology*, 44: 319-340.

Grollman, Eric Anthony. 2012. “Multiple Forms of Perceived Discrimination and Health among Adolescents and Young Adults.” *Journal of Health and Social Behavior*, 53(2): 199-214.

Harrell, Shelly P. 2000. “A Multidimensional Conceptualization of Racism-Related Stress: Implications for the Well-Being of People of Color.” *American Journal of Orthopsychiatry*, 70(1): 42-57.

Heard-Garris, Nia, M. Cale, L. Camaj, M. C. Hamati, T. P. Dominguez. 2018. “Transmitting Trauma: A Systematic Review of Vicarious Racism and Child Health.” *Social Science and Medicine*, 199: 230-240.

Hicken, Margaret T., Hedwig Lee, and Anna K. King. 2018. “The Weight of Racism: Vigilance and Racial Inequalities in Weight-Related Measures.” *Social Science and Medicine*, 199: 157-166.

Hudson, Darrell L., Eli Patterson, Kirsten Bibbins-Domingo, Karen A. Matthews, and Nancy Adler. 2013. “Race, Life Course Socioeconomic Position, Racial Discrimination, Depressive Symptoms and Self-Rated Health.” *Social Science and Medicine*, 97: 7-14.

Jacobsen, Leslie K., Steven M. Southwick, and Thomas R. Kosten. 2001. “Substance Use Disorders in Patients with Posttraumatic Stress Disorder: A Review of Literature.” *American Journal of Psychiatry*, 158: 1184-1190.

Jackson, Pamela B., and David R. Williams. 2006. “The Intersection of Race, Gender, and SES: Health Paradoxes.” In *Gender, Race, Class, and Health: Intersectional; Approaches*, p. 131-162. Jossey-Bass.

Kessler, Ronald C., and Jane D. McLeod. 1984. “Sex Differences in Vulnerability.” *American Sociological Review*, 49(5): 620-631.

Kessler, Ronald C., Kristin D. Mickelson, and David R. Williams. 1999. “The Prevalence, Distribution, and Mental Health Correlates of Perceived Discrimination in the United States.” *Journal of Health and Social Behavior*, 40(3): 208-230.

Landrine, Hope, and Elizabeth A. Klonoff. 1996. “The Schedule of Racist Events: A Measure of Racial Discrimination and a Study of its Negative Physical and Mental Health Consequences.” *Journal of Black Psychology*, 22(2): 144-168.

Leventhal, Howard and Paul D. Cleary. 1980. “The Smoking Problem: A Review of the Research and Theory in Behavioral Risk Modification.” *Psychology Bulletin*, 88:370-405.

Lewis, Tene T., Courtney D. Cogburn, and David R. Williams. 2015. “Self-Reported Experiences of Discrimination and Health: Scientific Advances, Ongoing Controversies, and Emerging Issues.” *Annual Review of Clinical Psychology*, 11: 407-440.

Louie, Patricia, and Blair Wheaton. 2018. “Prevalence and Patterning of Mental Disorders Through Adolescence in 3 Cohorts of Black and White Americans.” *American Journal of Epidemiology*, 187(11): 2332-2338.

Martz, Connor D., Amani M. Allen, Thomas E. Fuller-Rowell, Erica C. Spears, S. Sam Lim, Cristina Drenkard, Kara Chung, Evelyn A. Hunter, David H. Chae. 2019. *Journal of Racial and Ethnic Health Disparities*, 6(5): 1044-1051.

McCord, Joan, and Margaret E. Ensminger. 1997. “Multiple Risks and Comorbidity in an African-American Population.” *Criminal Behavior and Mental Health*, 7: 339-352.

McEwen, Bruce S., and Teresa Seeman. 1999. “Protective and Damaging Effects of Mediators of Stress: Elaborating and Testing the Concepts of Allostasis and Allostatic Load.” *Annals of the New York Academy of Sciences*, 896(1): 30-47.

McFarland, Michael J., John Taylor, Cheryl A. S. McFarland, and Katherine L. Friedman. 2018. “Perceived Unfair Treatment by Police, Race, and Telomere Length: A Nashville Community-based Sample of Black and White Men.” *Journal of Health and Social Behavior*, 59(4): 585-600.

Mertler, Craig A., and Rachel Vannatta. 2013. *Advanced and Multivariate Statistical Methods: Practical Application and Interpretation (Fifth Edition)*. Glendale, CA: Pyrczak Publishing.

Moody, Myles D., Robyn L. Brown, and Gabriele Ciciurkaite. 2019. “For Better or Worse: An Assessment of the ‘Linked Lives’ Concept and the Race-Based Effects of Partner Stress on Self-Rated Health among Older Adults.” *Journal of Racial and Ethnic Health Disparities*, 6(4): 861-867.

Mouzon, Dawne. 2013. “Can Family Relationships Explain the Race Paradox in Mental Health?” *Journal of Marriage and Family*, 75: 470-485.

Mouzon, Dawne M., Robert Joseph Taylor, Verna M. Keith, Emily J. Nicklett, and Linda M. Chatters. 2017. “Discrimination and Psychiatric Disorders among Older African Americans.” *International Journal of Geriatric Psychiatry*, 32(2): 175-182.

Nam, Charles B., and Monica Boyd. 2004. “Occupational Status in 2000: Over a Century of Census-Based Measurement.” *Population Research and Policy Review*, 23(4): 327-358.

Neblett, Enrique W., Mary Terzian, and Valencia Harriott. 2010. “From Racial Discrimination to Substance Use: The Buffering Effects of Racial Socialization.” *Child Development Perspectives*, 4(2): 131–137.

O’Rand, Angela M. 1996. “The Precious and the Precocious: Understanding Cumulative Disadvantage and Cumulative Advantage Over the Life Course.” *The Gerontologist*, 36(2): 230-238.

Pachter, Lee M., Cleopatra H. Caldwell, James S. Jackson, and Bruce A. Bernstein. 2018. “Discrimination and Mental Health in a Representative Sample of African-Americans and Afro-Caribbean Youth.” *Journal of Racial and Ethnic Health Disparities*, 5(4): 831-837.

Pager, Devah and Hana Shepherd. 2008. “The Sociology of Discrimination: Racial Discrimination in Employment, Housing, Credit, and Consumer Markets.” *Annual Review of Sociology*, 34: 181-209.

Paradies, Yin. 2006. “A Systematic Review of Empirical Research on Self-reported Racism and Health. *International Journal of Epidemiology*, 35: 888-901.

Paradies, Yin, Jehonathan Ben, Nida Denson, Amanuel Elias, Naomi Priest, Alex Pieterse, Arpana Gupta, Margaret Kelaher, and Gilbert Gee. 2015. “Racism as a Determinant of Health: A Systematic Review and Meta-Analysis.” *PLoS ONE*, 10(9): 1-48.

Pascoe, Elizabeth A., and Laura Smart Richman. 2009. “Perceived Discrimination and Health: A Meta-Analytic Review.” *Psychological Bulletin*, 135(4): 531-554.

Pearlin, Leonard I., Scott Schieman, Elena M. Fazio, and Stephen C. Meersman. 2005. “Stress, Health, and the Life Course: Some Conceptual Perspectives.” *Journal of Health and Social Behavior*, 46(2): 205-219.

Pearlin, Leonard I. 2010. “The Life Course and the Stress Process: Some Conceptual Comparisons.” *Journal of Gerontology: Social Sciences*, 65B(2): 207-215.

Perry, Brea L., Kathi L. H. Harp, and Carrie B. Oser. 2013. “Racial and Gender Discrimination in the Stress Process: Implications for African American Women’s Health and Well-Being.” *Sociological Perspectives*, 56(1): 25-48.

Quinlan, Jacklyn, Laurel N. Pearson, Christopher J. Clukay, Miaisha M. Mitchell, Qasimah Boston, Clarence C. Gravlee, and Connie Mulligan. 2016. “Genetic Loci and Novel Discrimination Measures Associated with Blood Pressure Variation in African Americans Living in Tallahassee.” *PLoS ONE*, 11(12): e0167700. https://doi.org/10.1371/journal.pone.0167700.

Sewell, Abigail A., Kevin A. Jefferson, and Hedwig Lee. 2016. “Living Under Surveillance: Gender, Psychological Distress, and Stop-Questions-and-Frisk Policing in New York City.” *Social Science and Medicine*, 159:1-13.

Sewell, Abigail A., and Kevin A. Jefferson. 2016. “Collateral Damage: The Health Effects of Invasive Police Encounters in New York City.” *The Journal of Urban: Bulletin of the New York Academy of Medicine*, 93(1): S42-S67.

Smith, Rhiannon L., and Amanda J. Rose. 2011. “The ‘Cost of Caring’ in Youths’ Friendships: Considering Associations Among Social Perspective-Taking, Co-Rumination, and Empathetic Distress.” *Developmental Psychology*, 47(6): 1792-1803.

Stevens, James P. 2001. *Applied Multivariate Statistics for the Social Sciences* (4th ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.

Stevens-Watkins, Danelle, Brea Perry, Kathi L. Harp, and Carrie B. Oser. 2012. “Racism and Illicit Drug Use Among African-American Women: The Protective Effects of Ethnic Identity, Affirmation, and Behavior.” *Journal of Black Psychology*, 38(4): 471-496.

Stevens-Watkins, Danelle, Brea Perry, Erin Pullen, Jennifer Jewell, and Carrie B. Oser. 2014. “Examining the Associations of Racism, Sexism, and Stressful Life events on Psychological Distress among African American Women.” *Cultural Diversity and Ethnic Minority Psychology*, 20(4): 561-569.

Thoits, Peggy A. 2010. “Stress and Health: Major Findings and Policy Implications.” *Journal of Health and Social Behavior*, 51: S41-S53.

Thomas, Anita Jones, Karen M. Witherspoon, and Suzette L. Speight. 2008. “Gendered Racism, Psychological Distress, and Coping Styles of African American Women.” *Cultural Diversity and Ethnic Minority Psychology*, 14(4): 307-314.

Turner, R. Jay, and William R. Avison. 2003. “Status Variations in Stress Exposure: Implications for the Interpretation of Research on Race, Socioeconomic Status, and Gender.” 2003. *Journal of Health and Social Behavior*, 44(4): 488-505.

Utsey, Shawn O., Yasser A. Payne, Ebonique S. Jackson, and Antoine M. Jones. 2002. “Race-Related Stress, Quality of Life Indicators, and Life Satisfaction among Elderly African Americans.” *Cultural Diversity and Ethnic Minority Psychology*, 8(3): 224-233.

Vujanovic, Anka A., Marcel O. Bonn-Miller, and Nancy M. Petry. 2016. “Co-Occurring Posttraumatic Stress and Substance Use: Emerging Research on Correlates, Mechanisms, and Treatments—Introduction to the Special Issue.” *Psychology of Addictive Behaviors*, 30(7): 713-719.

Wheaton, Blair. 1994. “Sampling the Stress Universe.” In: *Stress and Mental Health: Contemporary Issues and Prospects for the Universe* by William R. Avison and Ian H. Gotlib. Plenum Press: New York, pp. 77-114.

Williams, David R., and Ruth Williams-Morris. 2000. “Racism and Mental Health: the African American Experience. *Ethnicity and Health*, 5(3/4): 243-268.

Williams, David R., Hector M. Gonzalez, Stacey Williams, Selina A. Mohammed, Hashim Moomal, and Dan J. Stein. 2008. “Perceived Discrimination, Race and Health in South Africa.” *Social Science and Medicine,* 67(3): 441-452.

Williams, David R., and Selina A. Mohammed. 2009. “Discrimination and Racial Disparities in Health: Evidence and Needed Research.” *Journal Behavioral Medicine*, 32(1): 20-47.

Williams, David R., Naomi Priest, and Norman Anderson. 2016. “Understanding Associations between Race, Socioeconomic Status and Health: Patterns and Prospects.” *Health Psychology*, 35(4): 407-411.

Williams, David R. 2018. “Stress and the Mental Health of Populations of Color: Advancing Our Understanding of Race-Related Stressors.” *Journal of Health and Social Behavior*, 59(4): 466-485.

Williams, David R., Jourdyn A. Lawrence, and Brigette A. Davis. 2019. “Racism and Health: Evidence and Needed Research.” *Annual Review of Public Health*, 40: 105-125.

Williams, David R., Jourdyn A. Lawrence, Brigette A. Davis, and Cecilia Vu. 2019. “Understanding How Discrimination Can Affect Health.” *Health Services Research*, 54: 1374-1388.

Wills, Thomas A., and Saul Shiffman. 1985. *Coping and Substance Use*. Orlando, FL: Academic Press.

CHAPTER III

STUDY #2: VICARIOUS DISCRIMINATION AND PSYCHOLOGICAL DISTRESS AMONG BLACK MEN AND WOMEN

The empirical knowledge base for how racism contributes to health inequities along racial and ethnic lines has developed significantly in recent decades. A framework for understanding the adverse mental health effects of perceived discrimination among Black Americans has emerged and there is a growing epistemology on various aspects of the race-related stress experience (Brown 2003; Goosby, Cheadle, and Mitchell 2018; Harrell 2000; Thoits 2010; Turner 2013; Utsey et al. 2008; Williams, Yu, and Jackson 1997). Yet, despite our expanding areas of expertise on how exposure to psychosocial stressors is unequally distributed among various groups, crucial facets of the Black stress experience remain to be sufficiently elucidated through scientific inquiry. Specifically, when the life course perspective is used to understand how racism impacts Black Americans' health, researchers have called attention to the fact that certain components of the framework, such as vicarious racism, have been underutilized to enrich the scope of our investigation (Gee, Walsemann, and Brondolo 2012; Goosby and Heidbrink 2013; Harrell 2000; Heard-Garris et al. 2018).

The toxic health consequences of discrimination and race-based stress are well-established (Clark et al. 1999; Goosby, Cheadle, and Mitchell; Kessler, Mickelson, and Williams 1999; Williams et al. 2019). Nevertheless, the amount of empirical evidence for how *indirect* experiences of discrimination affects health is relatively limited (Bor et al. 2018; Heard-Garris et al. 2018; McFarland et al. 2018; Sewell and Jefferson 2016).

Moreover, it is of no surprise that similar questions regarding the mental health effects of vicarious experiences of racism currently reverberate throughout the sociopolitical sphere, as our access to information through technology and media outlets have vastly increased over the past decade. The lack of empirical evidence for how vicarious discriminatory experiences affect health is a consequence, in part, of our limited approach to data collection. Our most used measures of perceived discrimination focus primarily on the individual's *personal* experiences of discrimination. However, if our goal is to measure the effects of the full race-related stress experience, then we must broaden our scope to include the effects of indirect experiences of discrimination in addition to direct experiences of discrimination. If we continue neglecting to modify this aspect of our approach, we risk underestimating the larger toll of race-based stress on Black Americans' mental and physical health as well as identifying strategies for intervention. Thus, the goal of this study is to determine whether indirect discrimination represents a unique form of stress exposure that transcends the effects of direct experience of discrimination for Black Americans. Drawing from research on cumulative stress burden, the present study will test two possibilities. First, it is possible that impact of vicarious discrimination may be of little significance relative to personal experiences of discrimination and the mental health of Black Americans; alternatively, the effects of personal and vicarious discrimination may be additive and provide an increased mental health burden for Black Americans.

BACKGROUND

Mental Health among Black Americans

The sociology of mental health as it relates to Black Americans presents a unique set of challenges for researchers. Many of the empirical discoveries over recent decades are intuitive, while other conclusions are less clear. For example, results from numerous comparative studies have consistently demonstrated that Black Americans report similar or lower rates of mental health disorders relative to non-Hispanic Whites despite enduring more exposure to noxious race-related stress and other social stressors connected to socioeconomic factors, relationships, institutions, etc. (Brown 2003; Williams et al. 2007). Scholars in race and health have commonly referred to this phenomenon as the "race paradox in mental health" (Brown 2003; Erving, Thomas, and Frazier 2018; Louie and Wheaton 2018; Mouzon 2013; Williams 2018). However, researchers have also concluded that when Blacks experience poor mental health outcomes, they are more likely to endure longer, and more severe episodes compared to other racial and ethnic groups (Breslau et al. 2005; Williams et al. 2007).

Depressive and anxiety symptoms, and psychological distress are significant reflections of individuals' life satisfaction, and daily feelings or mood, which are all widely accepted conceptualizations of subjective well-being (Diener and Chan 2011). Well-being is a robust, strong predictor of health and longevity over the life span. A wealth of empirical evidence suggests that well-being is inversely related to mortality across diseased and healthy populations. Specifically, results from meta-analyses (Chida and Steptoe 2008) show that life satisfaction, hopefulness, optimism, and sense of humor in addition to positive moods (e.g., happiness, joy, energy, etc.) are all predictors of

longevity and decreased risk for mortality. Black Americans consistently endure an earlier onset of illness, more severe progression of disease, and lower life expectancy relative to Whites at every level of socioeconomic status (Braveman et al. 2010; Williams 2012). Thus, mental wellness, including the dimension of psychological distress among Blacks, is a key focal point of inquiry that will contribute to a larger body of work on the study of racial health inequities.

Findings from studies such as this will inform how the management of mental health and well-being are addressed to reduce negative health outcomes among Black Americans and other racial and ethnic minorities. While the investigation of Black-White patterns of the distribution of mental health disorders may provide murky waters for investigators, examining outcomes such as psychological distress and well-being present several empirically verified pathways for research. The present study will provide empirical insights for steps toward developing culturally-relevant services, and policy changes, that provide equitable solutions for addressing the causes and outcomes of distress among Black Americans.

Race-Based Stress for Black Americans

Findings from studies that use nationally-representative data have not only shown that Black Americans report significantly more exposure to discrimination than their non-Hispanic White counterparts, but some have also found that as much as 89.7% of their Black participants attributed their experiences of perceived discrimination to their race and ethnicity (Kessler, Mickelson, and Williams 1999). Evidence such as this greatly emphasizes the pervasiveness of racism, which is an added life course burden that is unique to racial and ethnic minorities. Racism is the system that denigrates, subjugates,

and differentially distributes social resources and opportunities to groups as a result of the categories and rankings called “races” based on an ideology of inferiority for groups with certain phenotypic characteristics and ethnic affiliations (Bonilla-Silva 1997; Clark et al. 1999; Williams, Lawrence, and Davis 2019). Over the past few decades, several domains of racism (Williams, Lawrence, and Davis 2019) have been linked to health outcomes: structural racism, cultural racism, and individual-level discrimination. Today, we have substantial empirical evidence to suggest that racism is a prevalent social stressor over the life course for Black Americans that can have serious health implications. There are three main pathways through which racism may influence health outcomes that have been offered by race and health researchers (Clark et al. 1999; Cohen, Kessler, and Gordon 1995; Goosby, Cheadle, and Mitchell 2018; Williams and Mohammed 2009): first, exposure to social stressors can lead to poor emotional states that create psychological distress, and ultimately compromise health; second, individuals often employ maladaptive behavioral coping responses in their attempt to manage stress, and these coping strategies may include substance use and misuse, and the neglect of positive health behaviors (e.g., adequate sleep, exercise, adherence to medical regimens, etc.); and third, psychological and behavioral reactions to major and daily stressors can change the structure and function of the neuroendocrine, autonomic, and immune systems.

Clark and colleagues (1999) proposed a biopsychosocial model that was closely patterned after the stress-coping model offered by Lazarus and Folkman (1984). This biopsychosocial model incorporates the complex interactions of biological, psychological, and social factors to explain how racism affects the stress process and can lead to health-related issues. The broad premise of this biopsychosocial model is that the

mere perception of environmental stimuli (e.g., personal interactions, policies, public disregard for the quality of Black lives, etc.) as racist can lead to substantial psychological and physiological stress responses. These stress responses may potentially contribute to an elevated risk for poor cardiometabolic outcomes, and early morbidity and mortality.

Previously, scholars have proffered specifics contexts through which racism is manifested, expressed, and maintained. Consistently, these contexts include the interpersonal context, collective context, cultural-symbolic context, and the sociopolitical context (Harrell 2000). Despite the growing nature of the literature on racism in the interpersonal context relative to the remaining contexts, the sociological scope of this investigation has been limited until recent years. Within the paradigm of race and health, conceptualizations of the types of racism and race-related stress experienced within the interpersonal context have been established based on the guidelines of stress theory. For example, the delineations between racism-related life events and daily racism microstressors are clear. Keeping with the foundational concepts of stress literature (Pearlin 1989), major experiences of discrimination refer to acute experiences of unfair treatment, while everyday discrimination is a chronic stressor for individuals, and may include experiences of unfair treatment that are relatively minor, routine, and sometimes subtle (Essed 1991; Williams et al. 1997).

One framework that outlines the complex process of how individuals are impacted by racism is the race-related stress framework (Harrell 2000). Race-related stress—defined as, “the race-related transactions between individuals or groups and their environment that emerge from the dynamics of racism, and that are perceived to tax or

exceed existing individual and collective resources or threaten well-being" (p. 44, 2000)—is a term that encompasses the multidimensional lived experience of the constant simultaneous exposure to racism in multiple life contexts, and subsequent racism-related vigilance (Carter 2007; Hicken, Lee, and King 2018), for racial and ethnic minorities from the "womb to the tomb". The types of race-related stressors include racism-related life events, daily racism microstressors, chronic-contextual stress, collective experiences of racism, the transgenerational transmission of group traumas, and vicarious racism.

Vicarious Discrimination and Health

Vicarious discrimination refers to the indirect experiences of discrimination that individuals endure through the observations and accounts of others (Essed 1991; Harrell 2000). This element of the race-related stress framework underscores the notion that racism can impact individuals directly and *indirectly*. Furthermore, vicarious discrimination is parallel to the idea of "linked lives", which is a life course framework concept that refers to the interconnectedness of human lives through social relationships across the life span (Elder 1994; Pearlin 2010). Both vicarious discrimination and the concept of linked lives highlight the fact that at every stage of life, people's actions, and experiences of success and adversity will likely impact those who are close to them. While we can assume that witnessing another person experience discrimination, or even simply hearing these accounts, can trigger physiological stress responses within individuals similar to direct experiences of discrimination, empirical support for this assumption is relatively limited.

A large portion of the literature on the impact of vicarious discrimination on health focuses on describing two key pathways that parents' experiences of racism impact their children—through the pre-birth maternal pathway and post-birth caregiver pathway (Anderson et al. 2015; Goosby and Heidbrink 2013; Heard-Garries et al. 2018). It is well-established that maternal experiences with racial discrimination can negatively impact infant birthweight (Chae et al. 2018; Collins et al. 2004; Dole et al. 2003; Earnshaw et al. 2013; Mustillo et al. 2004; Orchard and Price 2017; Rosenberg et al. 2002), for which Black Americans are at a greater risk for experiencing (Geronimus et al. 1996; Lu and Halfon 2003). Moreover, we know that children's health may be impacted by their parent's experiences of racism (see Heard-Garris et al. 2018 for examples). But, less is known about the transgenerational health consequences of racism from a multidirectional perspective.

Empirical evidence on how secondhand discrimination affects physical health is now emerging and implications strongly suggest that vicarious discrimination is a significant social determinant of health. Recently, researchers have documented how stress from vicarious racism is associated with greater disease activity among a community sample of Black women living with systemic lupus erythematosus (Martz et al. 2019). Another study used a biocultural approach and found that vicarious discrimination can adversely impact blood pressure and is associated with genes that are linked to psychological distress and mood disorders (Quinlan et al. 2016). One study even found that vicarious discrimination had a *greater* impact on the participants' blood pressure than their own direct experiences of racism (Boulter et al. 2015).

Finally, much of the literature on health effects of vicarious discrimination, or unfair treatment, is centered on hostile interactions between law enforcement and community residents. For example, Sewell and colleagues have documented the indirect mental (Sewell, Jefferson, and Lee 2016) and physical health (Sewell and Jefferson 2016; Sewell 2017) consequences for individuals who live in neighborhoods that are unfairly over-policed. We also know the wide broadcast of state violence against Black bodies can also compromise the mental health of Black Americans (Bor et al. 2018). Evidence has even emerged that unfair treatment by police is significantly associated with shorter telomere length among Black men relative to White men among a community sample (McFarland et al. 2018). But, to date, there are no studies that explicitly examine how vicarious discrimination (i.e., discrimination reported by respondents' spouse, children, other relatives, and friends) impacts mental health within the context of direct discrimination experiences, and other stressors, among a sample of Black American adults. The purpose of this study is to understand the extent to which indirect experiences of discrimination are associated with psychological distress relative to direct experiences of discrimination among Black American adults. Given prior research, it is expected that respondents would be most impacted by the sum of their indirect experiences of racism, which could potentially outweigh the impact of their own experiences of discrimination.

METHODS

Study Procedures and Sample

Data are derived from the Nashville Stress and Health Study (NSAHS), which is specifically aimed toward a greater understanding of Black-White and socioeconomic status disparities in health. The NSAHS is a random sample (N = 1252) of 627 Black men

and women, and 625 White men and women residing within Davidson County, Tennessee, which includes and extends beyond the greater Nashville, Tennessee area. The study investigators selected Nashville as a site not only because it is the state capital, but because it also includes two large historically Black universities (Fisk and Tennessee State) in addition to the country's oldest historically Black medical school (Meharry Medical College). These conditions made this site desirable as there was an increased likelihood that a representative sample of Black Americans would include individuals of higher socioeconomic position. The investigators contended that the process of disaggregating the health significance of race and socioeconomic status would require adequate representation of Black Americans of higher socioeconomic status.

There were 199 block groups within Davidson County that were randomly selected to obtain the sample. After Survey Sampling International Corporation provided 7000 randomly selected addresses, 3028 eligible households were revealed following a total of 6940 screens. Due to budget and time constraints, the researchers stopped short of screening the full 7,000 addresses. Four stratified samples of adults ages 22 to 69 were then drawn such that half of the individuals were Black and the other half were non-Hispanic White, with comparable numbers of men and women in each racial group. A portion of the block groups were stratified. Black households were oversampled as Black individuals compromise approximately 28% of Davidson County residents (according to 2010 Census data) as the researches sought to obtain a final sample with enough Black respondents to allow for robust within-group analyses by race. A sampling weight was constructed to account for the complex survey design and data collection process, and to increase confidence in the generalizability for the Black and White population aged 22-69

who resided in Davidson County during the time of the study. Specifically, non-response, on-cooperation, refusals, and non-contact during the screening and interviewing phases were all accounted for by this sampling weight.

After 2400 potential respondents were randomly sampled—one individual from each household—1252 participants successfully completed computer-assisted interviews with interviewers who were race-matched with the respondents and trained by the study investigators. The interviews were conducted in respondents' homes or on Vanderbilt's campus, and averaged about two hours and 45 minutes in length. Data collection lasted from April 2011 to January 2014. For the present study, a subsample of Black Americans will be used (N=627). The NSAHS data set was ideal for addressing the aims of this study because of its sufficient sample of Black Americans for examining gender and social class contrasts, as well as its unique discrimination measures, which will be discussed in the following section.

Measures

Outcome Variable. Mental health was assessed based on the respondents' reported levels of psychological distress. Psychological distress was measured using a 6-item subset drawn from a larger instrument called the Symptoms Checklist-90 (SCL-90) (Derogatis, Lipman, and Covi 1973; Derogatis, Rickels, and Rock 1976; Derogatis and Clearly 1977), which addresses the depression, anxiety, hostility, obsessive-compulsive, and paranoid ideation dimensions of psychological distress (α=0.70). Psychological distress is the key outcome variable of interest and is measured such that higher scores indicate more distress.

Independent Variables. To capture the entire racial discrimination experience, multiple forms of racial discrimination were assessed, including personal major experiences of discrimination, vicarious major experiences of discrimination (i.e., discrimination reported by respondents' spouse, child, other relative and close friend), and the respondents' daily or "everyday" discrimination experiences. The various forms of major discrimination were all measured based on the Major Experiences of Discrimination instrument (Williams et al. 2008), which is a seven-item instrument that includes "been unfairly fired or denied a promotion," "been unfairly treated by the police," and "been unfairly discouraged by teacher from pursuing a job/career." Responses were recorded as "yes" or "no". If respondents answered "Yes", then they were asked to whom the discrimination occurred: (1) self, (2) spouse, (3) child, (4) other relative, or (5) close friend. For the present study, responses of "Yes" for (1) self were separated into a measure of Personal Experiences of Major Discrimination; responses of "Yes" for (2) spouse, (3) child, (4) relative, or (5) close friend were all combined to make a separate measure of Vicarious Experiences of Major Discrimination. Day-to-day experiences of discrimination were measured using the Everyday Discrimination Scale (Williams et al. 1997). The Everyday Discrimination Scale (α=0.85) was comprised of nine items such as "You are treated with less courtesy than other people" and "You receive worse service than other people at restaurants or Stores." Respondents were asked to report the frequency with which these events occur: (0) never, (1) rarely, (2) sometimes, (3) often, and (4) almost always.

Other stressors were captured through the measures of major life events and chronic strains. Major life events were indexed with a 43-item inventory that assesses the

lifetime occurrence (0=no, 1=yes) of major and potentially traumatic stressors (Turner and Avison 2003). The measure includes items related to both violent and non-violent stressors (e.g., parental divorce, failing a grade in school), along with items concerning life traumas (e.g., rape, physical and emotional abuse, being injured with a weapon), witnessing violence, receiving information about bad events, and the death of relatives or close friends. Consistent with common practice, each score is a straight count of the number of stressors reported. Chronic strains were measured using a 41-item inventory (α=.86) that captures the daily and chronic stressors across several domains of life such as general strain (e.g., "You're trying to take on too many things at once"), employment strain (e.g., "You want to change jobs but don't feel you can"), relationship strain (e.g., "You have a lot of conflict with your partner"), and children (e.g., "A child's behavior is a source of serious concern for you"). Recent life event stressors were measured by 32 items, and respondents were asked to report if each event (e.g., "Did a child die," "Was there a marital separation or divorce," "Did someone have a major financial crisis," and "Was demoted at work or took a pay cut.") happened to them or someone close within the past 12 months.

Sociodemographic Characteristics. All analyses accounted for age, socioeconomic position, marital status, parental status, and level of racial identity. Age is employed as a continuous measure in years. Socioeconomic position was calculated using the respondents' education level (number of years of education completed), annual household income, and an occupational prestige score which was estimated using the NAM scoring system (Nam and Boyd 2004). The three estimates were standardized and summed to create a score. During data collection, respondents reported whether they

lived with their spouse (0=not living with a spouse, 1=married and living with a spouse), parental status (0=no children, 1=have children), and their level of racial identity centrality (1=strongly disagree to 7=strongly agree; α=0.80).

Analytic Strategy

Prior to the analyses, the data were properly screened and assessed to ensure that they were congruent with linear regression assumptions (Mertler and Vannatta 2013). Multicollinearity was assessed by calculating the Variance Inflation Factor (VIF) of each variable in the study. The mean VIF was a value of 1.27, which indicates that multicollinearity was not an issue (Stevens 2001). Additionally, bivariate correlation estimates revealed moderate to low associations among the key independent variables, further confirming that they meet the criteria for multiple regression analyses. Multiple steps were employed to address the objectives of the current study. First, the study variables' weighted means and proportions were calculated for the full sample and the gender-stratified samples. Second, statistically significant gender differences were assessed through Chi-square and *t* tests. Third, several sets of sequential linear regression analyses were conducted to assess the impact of vicarious discrimination on the level psychological distress of the respondents in each subsample. In the Model 1 of the analyses, levels of psychological distress were tested after accounting for a variety of sociodemographic factors (age, socioeconomic position, parental status, marital status, and racial identity). Model 2 assessed the impact of vicarious discrimination on psychological distress within the context of sociodemographic variables. Personal experiences of major discrimination were added to Model 3 for each set of analyses.

Model 4 included everyday discrimination experiences to account for an additional race-related stressor, while the impact of vicarious discrimination on psychological distress was assessed. In Models 5-7, vicarious discrimination was accounted for within the context of race-related and general stressors (major life events, chronic strains, and recent life events, respectively). It should be noted that these findings from ordinary least square regressions were compared with results obtained through a negative binomial regression and poisson regression approach, which is consistent with recommended approaches for outcomes that are count measures. Because all three of the approaches yielded a similar pattern of findings, the ordinary least squares regression models are presented as they provided a better fit for the models. Sample weights were employed during the analyses to avoid potential oversampling bias in an attempt to account for these disparities. All analyses were performed with Stata, version 14.

RESULTS

Descriptive Statistics

Table 3.1: Means and Proportions of Sample Characteristics

Characteristics	All	Black Women	Black Men
N	627	330	297
Outcome			
Psychological Distress	2.24	2.56***	1.84***
Stress Variables			
Major Life Events	8.75	8.74	8.76
Chronic Strains	30.86	31.84	29.66
Recent Life Events	2.23	2.69***	1.66***
Discrimination-Related Variables			
Discrimination-Vicarious	0.95	1.09	0.77
Discrimination-Self	1.19	1.09*	1.31*
Everyday Discrimination	10.44	10.47	10.41
Sociodemographic Variables			
Age	43.57	43.77	43.33
Socioeconomic Position	-0.28	-0.27	-0.29
Married (% Yes)	29.82	0.26**	0.46**
Parent (% Yes)	80.38	0.82	0.73
Level of Racial Identity	43.82	43.30*	44.45*

*p<0.05; **p<0.01; ***p<0.001; two-tailed tests

Table 3.1 presents the sample characteristics of the Black respondents from the Nashville Stress and Health Study. The average age of the respondents in this sample was 43 years. About 46% of the men in this sample were married and living with their spouse compared to only 26% of the women.

Multivariate Analyses

Table 3.2: Psychological Distress Regressed on Discrimination among Black Adults

	Model 1	*Model 2*	*Model 3*	*Model 4*	*Model 5*	*Model 6*	*Model 7*
Age	-0.020*	-0.018*	-0.019**	-0.013*	-0.011*	-0.004	-0.004
	(0.009)	(0.008)	(0.007)	(0.006)	(0.005)	(0.005)	(0.003)
Socioeconomic Position	0.286*	0.260*	0.220	0.311*	0.345**	0.289*	0.146**
	(0.114)	(0.117)	(0.126)	(0.129)	(0.122)	(0.125)	(0.053)
Married	0.080	0.051	0.092	0.071	0.047	-0.134	-0.022
	(0.222)	(0.225)	(0.232)	(0.198)	(0.189)	(0.155)	(0.069)
Parent	-0.302	-0.319	-0.246	-0.128	-0.251	-0.349	-0.119
	(0.243)	(0.233)	(0.250)	(0.251)	(0.293)	(0.315)	(0.134)
Level of Racial Identity	0.013	0.0129	0.001	0.002	0.005	0.006	0.004
	(0.008)	(0.008)	(0.009)	(0.007)	(0.008)	(0.008)	(0.004)
Discrimination-Vicarious		0.162	0.178	0.114	0.066	0.065	0.032
		(0.132)	(0.139)	(0.138)	(0.137)	(0.138)	(0.054)
Discrimination-Self			0.186*	0.023	-0.063	-0.089	-0.044
			(0.072)	(0.082)	(0.082)	(0.076)	(0.028)
Daily Discrimination				0.103***	0.099***	0.087***	0.040***
				(0.020)	(0.020)	(0.018)	(0.007)
Major Life Events					0.073***	0.063***	0.022***
					(0.015)	(0.0161)	(0.006)
Chronic Strains						0.033***	0.012***
						(0.008)	(0.003)
Recent Life Events							0.036**
							(0.012)
Constant	2.576***	2.325***	2.253***	1.641***	1.033**	0.064	-0.239
	(0.543)	(0.550)	(0.516)	(0.375)	(0.345)	(0.442)	(0.236)
N	627	627	627	627	627	627	627
R^2	0.054	0.067	0.091	0.181	0.217	0.245	0.257

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 3.2 presents the results from the multivariate linear regression analyses of psychological distress within the context of sociodemographic factors, general stressors, and discrimination among the full sample of Black adult respondents. In Models 1 and 2,

results revealed a negative relationship between age and psychological distress, and a positive relationship between socioeconomic position and psychological distress within the context of sociodemographic variables and vicarious discrimination. In Model 3, after personal experiences of major discrimination were accounted for, the results indicated a negative relationship between age and psychological distress, and a positive relationship between personally experienced discrimination and psychological distress. After Model 3, however, personally experienced major discrimination was no longer significantly associated with psychological distress among the full sample of Black adults. In Models 4 and 5, age was negatively associated with psychological distress, while socioeconomic position, everyday discrimination, and major life events were all positively associated with psychological distress. In Models 6 and 7, age was no longer significantly associated with psychological distress. However, in Models 6 and 7, socioeconomic position, everyday discrimination, major life events, chronic strains, and recent life events were all positively associated with psychological distress.

Table 3.3: Psychological Distress Regressed on Discrimination among Black Women

	Model 1	*Model 2*	*Model 3*	*Model 4*	*Model 5*	*Model 6*	*Model 7*
Age	-0.014	-0.012	-0.012	-0.009	-0.007	0.001	0.004
	(0.010)	(0.007)	(0.006)	(0.007)	(0.005)	(0.007)	(0.008)
Socioeconomic Position	0.294*	0.269	0.176	0.213	0.256	0.180	0.162
	(0.137)	(0.171)	(0.189)	(0.178)	(0.173)	(0.174)	(0.171)
Married	0.477	0.352	0.520	0.506	0.537*	0.367	0.320
	(0.332)	(0.317)	(0.322)	(0.295)	(0.269)	(0.243)	(0.218)
Parent	-0.191	-0.156	0.124	0.137	-0.002	-0.121	-0.046
	(0.222)	(0.223)	(0.239)	(0.242)	(0.257)	(0.251)	(0.264)
Level of Racial Identity	0.010	0.011	0.005	-0.002	0.005	0.008	0.011
	(0.012)	(0.011)	(0.011)	(0.013)	(0.012)	(0.010)	(0.009)
Discrimination-Vicarious		0.241**	0.252**	0.190*	0.146	0.164*	0.161*
		(0.075)	(0.082)	(0.088)	(0.082)	(0.076)	(0.073)
Discrimination-Self			0.303***	0.162*	0.084	0.051	0.049
			(0.061)	(0.077)	(0.079)	(0.068)	(0.062)
Daily Discrimination				0.083***	0.070***	0.063***	0.064**
				(0.018)	(0.018)	(0.018)	(0.021)
Major Life Events					0.096**	0.081*	0.066*
					(0.030)	(0.032)	(0.027)
Chronic Strains						0.029*	0.027*
						(0.011)	(0.012)
Recent Life Events							0.088***
							(0.025)
Constant	2.721***	2.237***	1.992***	1.623**	0.650	-0.466	-0.827
	(0.495)	(0.546)	(0.523)	(0.507)	(0.541)	(0.540)	(0.678)
N	330	330	330	330	330	330	330
R^2	0.063	0.094	0.159	0.222	0.285	0.309	0.326

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 3.3 presents the results from the regression analyses of psychological distress within the context of sociodemographic characteristics, general stressors, and discrimination among the subsample of Black women. In Model 1, socioeconomic position was positively associated with psychological distress. In Model 2, socioeconomic position was no longer significantly associated with distress. However, in

Model 2, vicarious discrimination was positively associated with psychological distress within the context of sociodemographic factors. In Model 3, age was negatively associated with psychological distress, while vicarious and personally experienced major discrimination were both positively associated with psychological distress. The positive relationships between vicarious discrimination and psychological distress, and direct major experiences of discrimination and psychological distress were maintained in Model 4. Additionally, in Model 4, a positive relationship between everyday experiences of discrimination and greater levels of psychological distress was revealed, while age was no longer significantly associated with psychological distress. In Model 5, being married and living with the spouse, personally experienced major discrimination, and major life events were all positively associated with psychological distress. In Models 6 and 7, racial identity, vicarious discrimination, everyday discrimination, major life events, chronic strains, and recent life events were all positively associated with psychological distress.

Table 3.4: Psychological Distress Regressed on Discrimination among Black Men

	Model 1	*Model 2*	*Model 3*	*Model 4*	*Model 5*	*Model 6*	*Model 7*
Age	-0.030*	-0.031*	-0.033**	-0.023*	-0.020*	-0.018*	-0.019*
	(0.012)	(0.013)	(0.012)	(0.009)	(0.009)	(0.008)	(0.008)
Socioeconomic Position	0.107	0.115	0.096	0.273	0.289	0.267	0.259
	(0.189)	(0.189)	(0.194)	(0.180)	(0.171)	(0.163)	(0.166)
Married	0.187	0.196	0.208	0.167	0.098	-0.064	-0.071
	(0.254)	(0.265)	(0.253)	(0.229)	(0.206)	(0.224)	(0.228)
Parent	-0.722*	-0.709*	-0.743*	-0.536	-0.637	-0.667	-0.673
	(0.326)	(0.316)	(0.343)	(0.342)	(0.384)	(0.406)	(0.412)
Level of Racial Identity	0.025	0.026	0.024	0.016	0.015	0.012	0.012
	(0.017)	(0.018)	(0.018)	(0.012)	(0.012)	(0.012)	(0.012)
Discrimination-Vicarious		-0.074	-0.056	-0.096	-0.150	-0.161	-0.165
		(0.185)	(0.196)	(0.184)	(0.170)	(0.175)	(0.173)
Discrimination-Self			0.156	-0.012	-0.110	-0.126	-0.118
			(0.087)	(0.088)	(0.081)	(0.083)	(0.083)
Daily Discrimination				0.107***	0.109***	0.099***	0.100***
				(0.028)	(0.028)	(0.026)	(0.027)
Major Life Events					0.064**	0.061**	0.065*
					(0.023)	(0.023)	(0.026)
Chronic Strains						0.022*	0.023*
						(0.011)	(0.011)
Recent Life Events							-0.044
							(0.059)
Constant	1.951	2.010	2.004*	1.164	0.832	0.495	0.526
	(1.067)	(1.030)	(0.971)	(0.789)	(0.695)	(0.671)	(0.701)
N	297	297	297	297	297	297	297
R^2	0.109	0.112	0.127	0.223	0.250	0.259	0.260

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 3.4 presents the results from the regression analyses of psychological distress within the context of sociodemographic characteristics, general stressors, and discrimination among the subsample of Black men. In Models 1-3, results indicate that age and being a parent were both negatively associated with psychological distress, while no other factors appeared to have significant effects. In Model 4, parental status was no

longer significantly associated with psychological distress. However, in Model 4, age was still negatively associated with psychological distress, while everyday discrimination was positively associated with psychological distress. In Models 5 and 6, everyday discrimination, major life events, and chronic strains were all positively associated with psychological distress. In Model 7, age was negatively associated with psychological distress, while everyday discrimination, major life events, chronic strains, ad recent life events were all positively associated with psychological distress.

DISCUSSION

Although findings on mental health outcomes among Black Americans remain somewhat precarious (Erving, Thomas, and Frazier 2018; Louie and Wheaton 2018), a wealth of empirical evidence demonstrates that perceived discrimination is a significant psychosocial stressor with mental health implications for Black Americans (Brondolo et al. 2009; Goosby, Cheadle, and Mitchell 2018; Kessler, Mickelson, and Williams 1999; McFarland et al. 2018; Pachter et al. 2018; Williams and Mohammed 2009). Moving beyond the traditional framework of empirically disentangling complex Black-White differences, this study narrows the scope of inquiry such that the focus is on Black Americans and within-group differences to gain clarity. Burgeoning research suggests that secondhand experiences of racism may negatively impact health and well-being among Black Americans (Bor et al. 2018; Boulter et al. 2015; Heard-Garris et al. 2018; Martz et al. 2019; Quinlan et al. 2016; Sewell, Jefferson, and Lee 2016; Sewell 2017). The purpose of this study was to examine the extent to which vicarious discrimination (i.e., discrimination experienced by one's spouse, child, other relative, and friends) is

associated with psychological distress within the context of direct experiences of discrimination and other stressors. Overall, results from this study support the hypothesis that vicarious discrimination significantly impacts the mental health of Black Americans. Furthermore, this study underscores the gender differences for how Black men and women experience vicarious discrimination as it relates to psychological distress.

First, findings from multivariate analyses in this study assessed the effects of direct experiences of discrimination on psychological distress levels among Black adults. Results showed that respondents' direct exposure to everyday discrimination events was consistently associated with greater levels of psychological distress across all social contexts and samples, which is congruent with the large conglomerate of knowledge on discrimination and mental health among racial and ethnic minorities (Banks, Kohn-wood, and Spencer 2006; Brown et al. 2000; Kessler, Mickelson, and Williams 1999; Williams et al. 2019). Discrimination, in general, is a substantial social stressor for Black Americans (Goosby, Cheadle, and Mitchell 2018; Lewis, Cogburn, and Williams 2015) and can even impact vital processes, such as stress reactivity and sleep, that significantly shape important cardiometabolic outcomes (Goosby, Straley, and Cheadle 2017; Hicken et al. 2013; Slopen and Williams 2014). More specifically, everyday discrimination experiences capture the significant dimension of chronic, day-to-day stress exposure, which is typically noted as more harmful for individuals than acute stressors over the life course (McGonagle and Kessler 1990). Some findings have also shown that when daily discrimination experiences are accounted for, the statistical significance of major discrimination experiences diminishes (Williams et al. 1997). Researchers have purported that this finding is attributed to the vigilance that is typically associated with chronic

stress exposure, and that vigilance is the key mechanism through which discrimination experiences are internalized and accumulate over time with strong health implications (Clark, Benkert, and Flack 2006; Hicken, Lee, and King 2018). Furthermore, everyday discrimination experiences, such as being unfairly treated with less respect than others, are ubiquitous and the most pervasive form of discrimination experienced by racial minorities in the post Jim Crow era (Banks, Kohn-Wood, and Spencer 2006; Essed 1991; Kessler, Mickelson, and Williams 1999).

Second, findings from this study provide partial evidence that vicarious discrimination significantly impacts the mental health of Black Americans. Among the subsample of Black women, vicarious discrimination was significantly associated with greater levels of psychological distress within the full context of sociodemographic characteristics, and discrimination-related stress exposure and other stress exposure. This finding provides evidence in support of scholars (e.g., Harrell 2000) who have previously theorized about the potentially negative effects of vicarious discrimination and other secondhand stress experiences. Furthermore, the results from the full model are somewhat consistent with empirical evidence that has recently emerged showing that indirect exposure to discrimination can have a similar or greater impact on health relative to direct exposure to discrimination (Boulter et al. 2015). Results from this study suggest that perhaps the sum of vicarious experiences of discrimination may be greater than the individuals' own experiences of discrimination given that there are multiple sources of vicarious discrimination. Additionally, this finding builds on the discrimination literature by establishing a positive association between vicarious discrimination and psychological

distress, which is a key area of study for mental health outcomes among Black Americans.

It should also be noted that when vicarious discrimination was assessed within the social context of sociodemographic factors, discrimination-related stress, and other stressors, results showed that it was not significantly associated with psychological distress levels among the full sample of Black adults or the subsample of Black men. This is not to say that vicarious discrimination does not matter with regards to Black men's mental wellness. Findings from other work have even suggested that specific discrimination-related social contexts, such as living in neighborhoods where residents are policed aggressively, are uniquely associated with higher psychological distress outcomes among Black men (Sewell, Jefferson, and Lee 2016). Instead, in this case, it is plausible that the general conceptualization of psychological distress, and perhaps other mental health outcomes, capture a vicarious stress component among Black women in particular that may not be as salient in the reporting of psychological distress for Black men. Black women may also be overburdened by their secondhand exposure to major discrimination as a result of their caregiving roles to their loved ones, leaving them more vulnerable to its mental health consequences. Based on their important roles to the people who they are closely tied to, they may face excess exposure to major discrimination. For example, as the findings from Study one showed, Black women who are married have higher odds of being exposed to secondhand major discrimination. Moreover, gender differences in mental health outcomes have been well-established in the social determinants of health literature; specifically, men and women tend to differ in how they experience psychosocial stressors (Almeida and Kessler 1998; Thoits 2010), and how

their stress experiences are expressed. Also, while men consistently report more experiences of discrimination (Forman, Williams, and Jackson 1997; Kessler, Mickelson, Williams 1999), women tend to report worse mental health outcomes (Turner and Avison 2003). Furthermore, gender has been found to moderate the relationship between perceived discrimination and distress outcomes among Black Americans (Banks, Kohn-Wood, and Spencer 2006).

Lastly, the impact of vicarious discrimination was assessed within the context of acute stressors and chronic strains, and everyday discrimination experiences. The purpose of this analyses was to determine whether vicarious discrimination had a unique effect on the levels of psychological distress reported by Black respondents. The results from these analyses showed that the effect of personal experiences of major discrimination were no longer significant after daily discrimination was accounted for among the subsamples. This finding is consistent with previous models that examine discrimination and mental health (Williams, Yu, and Jackson 1997). However, among the subsample of Black women, the results also showed that the impact of vicarious discrimination remained significant even when daily discrimination was accounted for. This finding emphasizes that when vicarious discrimination is not included in investigations on discrimination and health, a significant determinant of health may be overlooked when it should be equally considered within the overall context of general and race-related stressors.

Study Limitations and Implications for Future Research

Although this study contributes significant findings to the literature on discrimination and health, there were several limitations. First, the data were derived

from a community sample that may not be nationally representative of Black Americans. This may somewhat constrain the generalizability of the findings; however, the sample was randomly selected increasing generalizability within the targeted geographic region. Second, the data were collected cross-sectionally, which limits the ability to determine causal relationships among the variables in the array of models. Third, the discrimination and other stress exposure measures were measured retrospectively, which increases their susceptibility to recall bias. Fourth, only the Major Experiences of Discrimination scale was life-course adapted to include the indirect aspect of discrimination. The Every Day Discrimination instrument is a scale that would limit the respondents' ability to provide answers on others' behalf. As a result, vicarious day-to-day experiences of discrimination could not be assessed in this study.

Future studies on stress and health must incorporate more life course adapted measures of discrimination to capture the effects of vicarious discrimination. Based on the life course perspective of "linked lives", it is critical that we consider the experiences of those who are closely linked to the respondents because they may be significantly affected by them, possibly more than their own experiences. The discrimination measures that currently exist today have been well-constructed for inquiring about traditionally understood, legitimate experiences of discrimination. But the items in the questionnaires must be extended to the close social networks of the respondents if we hope to better assess the harm of discrimination. Additionally, research on the health effects of vicarious discrimination is relatively limited and often bereft of the term "vicarious discrimination", making it more difficult for researchers to aggregate the findings. As Heard-Garris and colleagues (2018) strongly suggest, it is imperative that researchers

come to a consensus on a common conceptualization and operationalization of vicarious discrimination, and that we identify and acknowledge it as such. Failure to do this will further perpetuate the obscurity of vicarious discrimination as a legitimate focal point of study in the social determinants of health literature.

Furthermore, future studies should aim to situate discrimination and vicarious discrimination within the social context of racism-related vigilance, which is the mechanism by which discrimination may negatively impact the health and well-being of Black Americans as a biopsychosocial stressor (Williams and Mohammad 2009). Vigilance refers to the process of initially perceiving a threat well before (anticipatory stress), and after (ruminative stress), the exposure to the threat occurs. For example, many Blacks are subjected to developing adaptive strategies to negotiate daily White social spaces (Feagin 1991), and assess and manage a certain level of risk as they choose when and where to engage the socially dominant White spaces. Ultimately, vigilance triggers the activation of biological stress responses that may result in a repeated chronic wear and dysfunction of the stress response system over time, which can compromise the health of individuals (Brosschot, Gerin, and Thayer 2006; Brosschot, Suzzane L. Pieper, and Julian F. Thayer 2005; Geronimus et al. 2006; McEwen 1998). Racism-related vigilance is potentially major determinant of health (Williams and Mohammad 2009), and it has been linked to poorer health outcomes, such as weight-related inequalities and greater levels of sleep difficulty among Black Americans (Hicken et al. 2013; Hicken, Lee, and King 2018). Findings show that when racism-related vigilance is accounted for, it has a greater impact on health than discrimination (Hicken et al. 2013).

Despite the limitations of this investigation, the present study provides a novel examination of the impact of personal and vicarious discrimination on the psychological distress of Black American adults simultaneously within the context of other stressors. Ultimately, the findings of this study suggest that vicarious discrimination uniquely impacts the psychological well-being of Black Americans when other stressors are accounted for. Furthermore, estimations of the cumulative stress burden among Black Americans may be less robust when vicarious discrimination is not considered. As a result, much more attention is needed in this relatively understudied area to provide more adequate and comprehensive measurements of race-related stressors, and the understanding of their health effects within the context of other psychosocial stressors.

REFERENCES

Almeida, David M., and Ronald C. Kessler. 1998. "Everyday Stressors and Gender Differences in Daily Distress." *Journal of Personality and Social Psychology*, 75(3): 670-680.

Anderson, Riana E., Saida B. Hussain, Melvin N Wilson, Daniel S. Shaw, Thomas J Dishion, and Joanna L. Williams. 2015. "Pathways to Pain: Racial Discrimination and Relations Between Parental Functioning and Child Psychosocial Well-Being." *Journal of Black Psychology*, 41(6): 491-512.

Banks, Kira Hudson, Laura P. Kohn-Wood, and Michael Spencer. 2006. "An Examination of the African American Experience of Everyday Discrimination and Symptoms of Psychological Distress." *Community Mental Health Journal*, 42(6): 555-570.

Bonilla-Silva, Eduardo. 1997. "Rethinking Racism: Toward a Structural Interpretation." *American Sociological Review*, 62(3): 465-480.

Bor, Jacob, Atheendar S. Venkataramani, David R. Williams, and Alexander C. Tsai. 2018. "Police Killings and Their Spillover Effects on the Mental Health of Black Americans: A Population-Based, Quasi-Experimental Study." *Lancet*, 392: 302-310.

Boulter, Alexis C., Jacklyn Quinlan, Aida T. Miro-Herrans, Laurel N. Pearson, Nubiana L. Todd, HEAT Steering Committee, Clarence C. Gravlee, and Connie J. Mulligan. 2015. "Interaction of *Alu* Polymorphisms and Novel Measures of Discrimination in Association with Blood Pressure in African Americans Living in Tallahassee, Florida." *Human Biology*, 84(4): 295-305.

Braveman, Paula A., Catherine Cubbin, Susan Egerter, David R. Williams, and Elsie Pamuk. 2010. "Socioeconomic Disparities in Health in the United States: What the Patterns Tell Us." *American Journal of Public Health*, 100: S186-S196.

Breslau, Joshua, Kenneth S. Kendler, Maxwell Su, and Sergio Gaciola-Aguilar. 2005. "Lifetime Risk and Persistence of Psychiatric Disorders Across Ethnic Groups in the United States." *Psychological Medicine*, 35(3): 317-327.

Brondolo, Elizabeth, Nisha Brady ver Halen, Melissa Pencille, Danielle Beatty, and Richard J. Contrada. 2009. "Coping with Racism: A Selective Review of the Literature and Theoretical and Methodological Critique." *Journal of Behavioral Medicine*, 32: 64-88.

Brosschot, Jos F., Suzanne Pieper, and Julian F. Thayer. 2005. "Expanding Stress Theory: Prolonged Activation and Perseverative Cognition." *Psychoneuroendocrinology*, 30(1): 1043-1049.

Brosschot, Jos F., William Gerin, and Julian F. Thayer. 2006. “The Perseverative Cognition Hypothesis: A Review of Worry, Prolonged Stress-Related Physiological Activation, and Health.” *Journal of Psychosomatic Research*, 60(2):113-124.

Brown, Tony N., David R. Williams, James S. Jackson, Harold W. Neighbors, Myriam Torres, Sherrill L. Sellers, and Kendrick T. Brown. 2000. “‘Being Black and Feeling Blue’: The Mental Health Consequences of Racial Discrimination.” *Race and Society*, 2(2): 117-131.

Brown, Tony N. 2003. “Critical Race Theory Speaks to the Sociology of Mental Health: Mental Health Problems Produced by Racial Stratification.” *Journal of Health and Social Behavior*, 292-301.

Carter, Robert T. 2007. “Racism and Psychological and Emotional Injury: Recognizing and Assessing Race-Based traumatic Stress.” *The Counseling Psychologist*, 35(13): 13-105.

Chae, David H., Sean Clouston, Connor D. Martz, Mark L. Hatzenbuehler, Hannah L.F. Cooper, Rodman Turpin, Seth Stephens-Davidowitz, and Michael R. Kramer. 2018. “Area Racism and Birth Outcomes among Blacks in the United States.” *Social Science and Medicine*, 199: 49-55.

Clark, Rodney, Norman B. Anderson, Vernessa R. Clark, and David R. Williams. 1999. “Racism as a Stressor for African Americans: A Biopsychosocial Model.” *American Psychologist*, 54(10): 805-816.

Clark, Rodney, Ramona A. Benkert, and John M. Flack. 2006. “Large Arterial Elasticity Varies as a Function of Gender and Racism-Related Vigilance in Black Youth.” *Journal of Adolescent Health*, 39: 562-569.

Chida, Yoichi, and Andrew Steptoe. 2008. “Positive Psychological Well-Being and Mortality: A Quantitative Review of Prospective Observational Studies.” *Psychosomatic Medicine*, 70(7): 741-756.

Cohen, Sheldon, Ronald C. Kessler, and L. U. Gordon. 1995. “Strategies for Measuring Stress in Studies of Psychiatric and Physical Disorders.” Pp. 3-26 in *Measuring Stress: A Guide for Health and Social Scientists*, edited by Sheldon Cohen, Ronald C. Kessler, and U. G. Lynn. New York: Oxford University Press.

Collins, James W., Richard J. David, Arden Handler, Stephen Wall, and Steven Andes. 2004. “Very Low Birthweight in African American Infants: The Role of Maternal Exposure to Interpersonal Racial Discrimination.” *American Journal of Public Health*, 94: 2132-2138.

Derogatis, Leonard R., Ronald S. Lipman, and Lino Covi. 1973. “The SCL-90: An Outpatient Psychiatric Rating Scale.” *Psychopharmacology Bulletin*, 9:13-28.

Derogatis, Leonard R., Karl Rickels, and Anthony F. Rock. 1976. “The SCL-90 and the MMPI: A Step in the Validation of a New Self-Report Scale.” *British Journal of Psychiatry*, 128: 280-289.

Derogratis, Leonard R., and Patricia A. Clearly. 1977. “Confirmation of the Dimensional Structure of the SCL-90: A Study in Construct Validation.” *Journal of Clinical Psychology*, 33(4): 981-989.

Diener, Ed, and Micaela Y. Chan. 2011. “Happy People Live Longer: Subjective Well-Being Contributes to Health and Longevity.” *Applied Psychology*, 3(1): 1-43.

Dole, N., and D. A. Savitz, I. Hertz-Picciotto, A. M. Siega-Riz, M. J. McMahon, and P. Buekens. 2003. “Maternal Stress and Preterm Birth.” *American Journal of Epidemiology*, 157(1): 14-24.

Earnshaw, Valerie A., Lisa Rosenthal, Jessica B. Lewis, Emily C. Stasko, Johnathan N. Tobin, Tene T. Lewis, Allecia E. Reid, and Jeannette R. Ickovics. 2013. “Maternal Experiences with Everyday Discrimination and Infant Birth Weight: A Test of Mediators and Moderators among Young, Urban Women of Color.” *Annals of Behavioral Medicine*, 45(1): 13-23.

Elder, Glen H. 1994. “Time, Human Agency, and Social Change: Perspectives on the Life Course.” *Social Psychology Quartely*, 57(1): 4-15.

Erving, Christy L., Courtney S. Thomas, and Cleothia Frazier. 2018. “Is the Black-White Mental Health Paradox Consistent Across Gender and Psychiatric Disorders?” *American Journal of Epidemiology*, 188(2): 314-322.

Essed, Philomena. 1991. *Understanding Everyday Racism*, Newbury Park, CA: Sage.

Gee, Gilbert C., Katrina M. Walsemann, and Elizabeth Brondolo. 2012. “A Life Course Perspective on How Racism May Be Related to Health Inequities.” *American Journal of Public Health*, 102: 967-974.

Geronimus, Arline T. 1996. “Black/White Differences in the Relationship of Maternal Age to Birthweight: A Population-Based Test of the Weathering Hypothesis.” *Social Science and Medicine*, 42(4): 589-597.

Geronimus, Arline T., Margaret Hicken, Danya Keene, and John Bound. 2006. “‘Weathering’ and Age Patterns of Allostatic Load Scores among Blacks and Whites in the United States.” *American Journal of Public Health*, 96(5): 826-833.

Goosby, Bridget J., and Chelsea Heidbrink. 2013. “Transgenerational Consequences of Racial Discrimination for African American Health.” *Sociology Compass*, 7(8): 630-643.

Goosby, Bridget J., Elizabeth Straley, and Jacob E. Cheadle. 2017. “Discrimination, Sleep, and Stress Reactivity: Pathways to African American-White Cardiometabolic Risk Inequities.” *Population Research and Policy Review*, 36(5): 699-716.

Goosby, Bridget J., Jacob E. Cheadle, and Colter Mitchell. 2018. “Stress-Related Biosocial Mechanisms of Discrimination and African American Health Inequities.” *Annual Review of Sociology*, 44: 319-340.

Harrell, Shelly P. 2000. “A Multidimensional Conceptualization of Racism-Related Stress: Implications for the Well-Being of People of Color.” *American Journal of Orthopsychiatry*, 70(1): 42-57.

Heard-Garris, Nia, M. Cale, L. Camaj, M. C. Hamati, T. P. Dominguez. 2018. “Transmitting Trauma: A Systematic Review of Vicarious Racism and Child Health.” *Social Science and Medicine*, 199: 230-240.

Hicken, Margaret T., Hedwig Lee, Jennifer Ailshire, Sarah A. Burgard, and David R. Williams. 2013. “‘Every Shut Eye, Ain’t Sleep’: The Role of Racism-Related Vigilance in Racial/Ethnic Disparities in Sleep Difficulty.” *Race and Social Problems*, 5(2): 100-112.

Hicken, Margaret T., Hedwig Lee, and Anna K. King. 2018. “The Weight of Racism: Vigilance and Racial Inequities in Weight-Related Measures.” *Social Science Medicine*, 199: 157-166.

Kessler, Ronald C., Kristin D. Mickelson, and David R. Williams. 1999. “The Prevalence, Distribution, and Mental Health Correlates of Perceived Discrimination in the United States.” *Journal of Health and Social Behavior*, 40(3): 208-230.

Lazarus, Richard S., and Susan Folkman. 1984. *Stress, Appraisal, and Coping*. Springer Publishing Company.

Lewis, Tene T., Courtney D. Cogburn, and David R. Williams. 2015. “Self-Reported Experiences of Discrimination and Health: Scientific Advances, Ongoing Controversies, and Emerging Issues.” *Annual Review of Clinical Psychology*, 11: 407-440.

Louie, Patricia, and Blair Wheaton. 2018. “Prevalence and Patterning of Mental Disorders Through Adolescence in 3 Cohorts of Black and White Americans.” *American Journal of Epidemiology*, 187(11): 2332-2338.

Lu, Michael C., and Neal Halfon. 2003. “Racial and Ethnic Disparities in Birth Outcomes: A Life-Course Perspective.” *Maternal and Child Health Journal*, 7(1): 13-30.

Martz, Connor D., Amani M. Allen, Thomas E. Fuller-Rowell, Erica C. Spears, S. Sam Lim, Cristina Drenkard, Kara Chung, Evelyn A. Hunter, David H. Chae. 2019. *Journal of Racial and Ethnic Health Disparities*, 6(5): 1044-1051.

McEwen, Bruce S. 1998. “Stress, Adaptation, and Disease: Allostasis and Allostatic Load.” *Annals of the New York Academy of Sciences*, 840(1): 33-44.

McFarland, Michael J., John Taylor, Cheryl A. S. McFarland, and Katherine L. Friedman. 2018. “Perceived Unfair Treatment by Police, Race, and Telomere Length: A Nashville Community-based Sample of Black and White Men.” *Journal of Health and Social Behavior*, 59(4): 585-600.

McGonagle, Katherine A., and Ronald C. Kessler. 1990. “Chronic Stress, Acute Stress, and Depressive Symptoms.” *American Journal of Community Psychology*, 18(5): 681-706.

Mertler, Craig A., and Rachel Vannatta. 2013. *Advanced and Multivariate Statistical Methods: Practical Application and Interpretation (Fifth Edition)*. Glendale, CA: Pyrczak Publishing.

Mouzon, Dawne. 2013. “Can Family Relationships Explain the Race Paradox in Mental Health?” *Journal of Marriage and Family*, 75: 470-485.

Mustillo, Sarah, Nancy Krieger, Erica P. Gunderson, Stephen Sidney, Heather McCreathm and Catarina I. Kiefe. 2004. “Self-Reported Experiences of Racial Discrimination and Black-White Differences in Preterm and Low-Birthweight Deliveries: The CARDIA Study.” *American Journal of Public Health*, 94: 2125-2131.

Nam, Charles B., and Monica Boyd. 2004. “Occupational Status in 2000: Over a Century of Census-Based Measurement.” *Population Research and Policy Review*, 23(4): 327-358.

Orchard, Jacob, and Joseph Price. 2017. “County-Level Racial Prejudice and the Black-White Gap in Infant Health Outcomes.” *Social Science and Medicine*, 181: 191-198.

Pachter, Lee M., Cleopatra H. Caldwell, James S. Jackson, and Bruce A. Bernstein. 2018. “Discrimination and Mental Health in a Representative Sample of African-Americans and Afro-Caribbean Youth.” *Journal of Racial and Ethnic Health Disparities*, 5(4): 831-837.

Pearlin, Leonard I. 1989. “The Sociological Study of Stress.” *Journal of Health and Social Behavior,* 30(3): 241-256.

Pearlin, Leonard I. 2010. “The Life Course and the Stress Process: Some Conceptual Comparisons.” *Journal of Gerontology: Social Sciences*, 65B(2): 207-215.

Quinlan, Jacklyn, Laurel N. Pearson, Christopher J. Clukay, Miaisha M. Mitchell, Qasimah Boston, Clarence C. Gravlee, and Connie Mulligan. 2016. “Genetic Loci and Novel Discrimination Measures Associated with Blood Pressure Variation in African Americans Living in Tallahassee.” *PLoS ONE,* 11(12): e0167700. https://doi.org/10.1371/journal.pone.0167700.

Rosenberg, Lynn, Julie R. Palmer, Lauren A. Wise, Nicholas J. Horton and Michael J. Corwin. 2002. “Perception of the Racial Discrimination and the Risk of Preterm Birth.” *Epidemiology*, 13(6): 646-652.

Sewell, Abigail A., and Kevin A. Jefferson. 2016. “Collateral Damage: The Health Effects of Invasive Police Encounters in New York City.” *The Journal of Urban: Bulletin of the New York Academy of Medicine*, 93(1): S42-S67.

Sewell, Abigail A., Kevin A. Jefferson, and Hedwig Lee. 2016. “Living Under Surveillance: Gender, Psychological Distress, and Stop-Questions-and-Frisk Policing in New York City.” *Social Science and Medicine*, 159:1-13.

Sewell, Abigail A. 2017. “Illness Association of Police Violence: Differential Relationships by Ethnoracial Composition.” *Sociological Forum*, 32(S1): 975-997.

Slopen, Natalie, and David R. Williams. 2014. “Discrimination, Other Psychosocial Stressors, and Self-Reported Sleep Duration and Difficulties.” *Sleep*, 37(1): 147-156.

Stevens, James P. 2001. *Applied Multivariate Statistics for the Social Sciences* (4th ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.

Thoits, Peggy A. 2010. “Stress and Health: Major Findings and Policy Implications.” *Journal of Health and Social Behavior*, 51: S41-S53.

Turner, R. Jay, and William R. Avison. 2003. “Status Variations in Stress Exposure: Implications for the Interpretation of Research on Race, Socioeconomic Status, and Gender.” 2003. *Journal of Health and Social Behavior*, 44(4): 488-505.

Turner, R. Jay. 2013. “Understanding Health Disparities: The Relevance of the Stress Process Model.” *Society and Mental Health*, 3(3): 170-186.

Utsey, Shawn O., Norman Giesbrecht, Joshua Hook, and Pia M. Stanard. 2008. “Cultural, Sociofamilial, and Psychological Resources that Inhibit Psychological Distress in African Americans Exposed to Stressful Life Events and Race-Related Stress.” *Journal of Counseling Psychology*, 55(1): 49-62.

Williams, David R., Yan Yu, James S. Jackson, and Norman B. Anderson. 1997. "Racial Differences in Physical and Mental Health: Socio-Economic Status, Stress and Discrimination." *Journal of Health Psychology.* 2(3): 335-351.

Williams, David R., Hector M. Gonzalez, Harold Neighbors, Randolph Nesse, Jamie M. Abelson, Julie Sweetman, and James S. Jackson. 2007. “Prevalence and Distribution of Major Depressive Disorder in African Americans, Caribbean Blacks, and Non-Hispanic Whites.” *Archives of General Psychiatry*, 64: 305-315.

Williams, David R., Hector M. Gonzalez, Stacey Williams, Selina A. Mohammed, Hashim Moomal, and Dan J. Stein. 2008. “Perceived Discrimination, Race and Health in South Africa.” *Social Science and Medicine*, 67(3): 441-452.

Williams, David R., and Selina A. Mohammed. 2009. “Discrimination and Racial Disparities in Health: Evidence and Needed Research.” *Journal Behavioral Medicine*, 32(1): 20-47.

Williams, David R. 2012. “Socioeconomic Disparities in Health in the United States: What the Patterns Tell Us.” *American Journal of Public Health*, S186-S196.

Williams, David R. 2018. “Stress and the Mental Health of Populations of Color: Advancing Our Understanding of Race-Related Stressors.” *Journal of Health and Social Behavior*, 59(4): 466-485.

Williams, David R., Jourdyn A. Lawrence, and Brigette A. Davis. 2019. “Racism and Health: Evidence and Needed Research.” *Annual Review of Public Health*, 40: 105-125.

Williams, David R., Jourdyn A. Lawrence, Brigette A. Davis, and Cecilia Vu. 2019. “Understanding How Discrimination Can Affect Health.” *Health Services Research*, 54: 1374-1388.

CHAPTER IV

STUDY #3: VICARIOUS MAJOR DISCRIMINATORY EXPERIENCES AND THE MODERATING EFFECTS OF PERSONAL PSYCHOSOCIAL RESOURCES ON THE MENTAL HEALTH AND WELL-BEING OF BLACK ADULTS

In recent decades, researchers have provided an abundance of evidence to show that discrimination, or unfair treatment, negatively impacts the health of Black Americans over the life course (Banks, Kohn-Wood, and Spencer 2006; Bravemen, Egerter, and Williams 2010; Farmer, Wray, and Thomas 2019; Gee and Ford 2011; Gee, Walsemann, and Brondolo 2012; Goosby et al. 2015; Lewis, Cogburn, and Williams 2015 Paradies et al. 2015; Pascoe and Richman 2009; Williams, Lawrence, and Davis 2019). A strong body of knowledge also demonstrates the links between racism, the mental health manifestations of race-related stress, and early health deterioration—all for which Black Americans are disproportionately at risk (Braveman 2014; Chae et al. 2020; Farmer, Wray, and Thomas 2019; Goosby, Cheadle, and Mitchell 2018; Williams et al. 2016; Williams et al. 2019). Although racism does not fully account for the longstanding racial inequities in health, race-related stress has been identified as a significant factor for explaining these disparities (Clark et al. 1999; Harrell 2000).

While there is extensive proof documenting the deleterious effects of perceived discrimination on the health of African Americans, systematic review and meta-analysis has shown that these studies have primarily investigated the direct effects of discrimination on health outcomes (e.g., Paradies et al. 2015). Consequently, less is known about the *indirect* effects of perceived discrimination on Black Americans' health,

apart from recent work on the effects of secondhand discrimination (Bor et al. 2018; Boulter et al. 2015; Colen et al. 2019; Goosby and Heidbrink 2013; Heard-Garris et al. 2018; Martz et al. 2019; McFarland et al. 2018; Quinlan et al. 2016; Sewell, Jefferson, and Lee 2016). Even less is known about the psychosocial mechanisms related to the mental health effects of vicarious discriminatory experiences. As such, the question of how important psychosocial resources—mastery, self-esteem, and active coping—interact with secondhand discriminatory experiences to influence mental health remains largely unanswered.

Researchers have proposed a framework for understanding the health effects of race-related stress, which refers to the strain that racial and ethnic minorities endure because of their chronic and acute experiences with racial discrimination that may threaten their personal well-being (Clark et al. 1999; Harrell 2000; Utsey 1999). The utility of this framework lends itself to the understanding the psychosocial impact of vicarious racism on health outcomes. Within this framework, Harrell (2000) defined vicarious racism as the distressing "experiences of prejudice and discrimination that happen to members of one's family and close friends (Steele et al., 1982; Tatum 1987), as well as those involving strangers (e.g., the 1998 dragging death of James Byrd in Texas)…" (2000, p. 45). Furthermore, Harrell asserted that vicarious racism "can create anxiety, a heightened sense of danger/vulnerability, anger, and sadness, among other emotional and psychological reactions" (2000, p. 45). Foundational concepts of stress theory suggest that discrimination is a unique psychosocial stressor that may threaten an individual's well-being (Clark et al. 1999). Thus, Harrell's assertion has maintained merit. But, to date, no studies have comprehensively tested these theories.

This study will be among the first to empirically consider the effects of secondhand discrimination on the mental health and well-being of Black Americans from a stress and coping perspective. The overall goal of this study is to better understand the impact of major discriminatory experiences on well-being from a broader lens relative to how previous work has approached this investigation. Recognizing discriminatory stress and poor mental health outcomes as potential pathways for poor physical health outcomes for Black Americans over the life span, this study will use an all-Black community sample to address the following questions: 1) how do secondhand experiences of major discrimination impact the mental health and well-being of Black adults, and 2) how might psychosocial resources (i.e., mastery, self-esteem, and John Henryism active coping) moderate the relationship between major discrimination and mental health and well-being?

BACKGROUND

Discrimination

Discrimination, or unfair treatment based on an individual's social status, has been firmly established as a significant social determinant of health through which racial disparities are produced and maintained (Bravemen, Egerter, and Williams 2010; Williams and Mohammed 2009). Discrimination marginalizes individuals based on their group membership and may occur through institutions and between individuals on an interpersonal level. Common sites for where discrimination might occur include places of employment, education, the housing industry, credit markets, consumer markets, the

service industry, and daily interactions in public spaces (Feagin 1991; Pager and Shepherd 2008; Williams and Mohammed 2009).

When studying the health effects of discrimination, researchers tend to follow the frameworks of stress theory by examining the effects of major, or acute, experiences of discrimination, in addition to the subtle daily, or chronic, experiences of discrimination (Williams et al. 1997; Williams et al. 2008). Consistent with the stress literature, major and everyday experiences of discrimination are significantly associated with poorer mental health outcomes, particularly among Black Americans (Banks, Kohn-Wood, and Spencer 2006; Kessler, Mickelson, and Williams 1999; Pachter et al. 2018; Pascoe and Richman 2009; Williams et al. 1997). Furthermore, the less overt, day-to-day experiences of discrimination are cited as an even more robust predictor of poor well-being relative to major experiences of discrimination (Kessler, Mickelson, and Williams 1999; Wheaton et al. 2018; Williams et al. 1997). Despite the strides that have been made in elucidating the effects of discrimination on health, systematic review and meta-analyses have revealed that the majority of the studies on discrimination and health present findings that describe these outcomes among individuals who were the direct targets of discrimination (Paradies et al. 2015). Few studies have assessed health outcomes among respondents who were not the direct targets, but were tied to the targets of discrimination (Bor et al. 2018; Boulter et al. 2015; Colen et al. 2019; Goosby and Heidbrink 2013; Heard-Garris et al. 2018; Martz et al. 2019; McFarland et al. 2018; Quinlan et al. 2016; Sewell, Jefferson, and Lee 2016). Subsequently, the effects of secondhand discrimination remain poorly understood.

Stress and Coping, and Discrimination among Black Americans

Social scientists have widely agreed that stress exposure is not arbitrarily distributed across individuals in society and may disproportionately affect people with lower social statuses, such as racial and ethnic minorities (Meyer, Schwartz, and Frost 2008; Thoits 2010; Turner and Avison 2003). For example, studies using national survey data found that Black Americans tend to report greater levels of exposure to discrimination, in addition to a greater frequency in exposure to unfair treatment relative to non-Hispanic White Americans (Kessler, Mickelson, and Williams 1999). Findings from these data also revealed that 89.7% of the Black respondents in the sample attributed their experiences of discrimination to their race and ethnicity compared to only 21% of the Whites in the sample who attributed their experiences of discrimination to their race. Despite these findings, the levels of exposure to secondhand discrimination for these groups are still unknown. It is worth noting that this gap in the literature is largely a result of researchers using survey tools that do not capture vicarious experiences of discrimination. But it stands to reason that these indirect experiences illicit stress responses among African Americans that are similar to stress models that have been developed over the past several decades.

Personal psychosocial resources are typically examined among individuals who were direct targets of stressful events, but personal resources may also be used to evaluate the impact of secondhand discrimination. Unfair treatment based on an individual's group membership not only affects the direct target of the discriminatory event, but it also may indirectly impact others within that person's status group. Social identity theory, for example, suggests that individuals tend to be aware of their level of

belonging to a social category or group, and that the value and emotional significance that they attach to this membership is strongly linked to their well-being outcomes (Tajfel 1978). Findings have shown that racial identity is significantly associated with well-being (Hughes 2015). Furthermore, some findings have shown that racial identity can be a risk factor for experiencing discrimination while also serving as a buffering factor when assessing the relationship between discrimination and mental health (Sellers et al. 2003). Additionally, racial identity may be a significant factor for explaining various mental health outcomes among individuals who experience secondhand discrimination stress. However, the buffering effects of other personal psychosocial resources that are more widely used in stress and coping frameworks will be prioritized in this study.

Early iterations of the stress process model (Pearlin et al. 1981) have asserted that personal psychosocial resources—such as mastery, self-esteem, and perceived social support—are an integral part of the stress process as they help determine how individuals are impacted by social stressors. Higher levels of mastery, or sense of control, among individuals tend to buffer the noxious effects of stressors on mental health (Cassel 1976; Cobb 1976; Pearlin 1999; Thoits 1995; Turner and Brown 2010). Self-esteem refers to how individuals view their self-worth and is strongly linked to mental health and well-being (Rosenberg 1965). The self-esteem theory of depression (Brown and Harris 1978), for example, hypothesizes that individuals with lower levels of self-esteem may be at a greater risk for depression in the face of stress exposure, while individuals with high self-esteem may be more resilient to stressful events and the mental health manifestations of exposure to psychosocial stressors (Aspinwall and Taylor 1992; Taylor and Brown 1988). Perceived social support—the quality of one's social bonds and level of integration

within their primary group (Turner and Brown 2010)—is another personal psychosocial resource that stress researchers cite as a buffer to stress exposure. Social support is particularly important among African Americans, as studies have documented how higher levels of perceived social support improves their resiliency and subsequent outcomes in quality of life (Brown 2008; Constantine, Wilton, and Caldwell 2003; Nguyen et al. 2016). While social support is an important component for studying stress and coping among Black Americans, this study will focus on the moderating effects of the psychosocial resources that reflect individuals' personal attributes.

One of the overarching tenets of the transactional model of stress and coping is that coping resources and strategies, much like stress exposure, are also not uniformly distributed across all groups and statuses (Lazarus and Folkman 1984). Among the general American population, findings from studies have demonstrated that both mastery and self-esteem may buffer the negative impact of stressful events and strains on mental health and well-being among Americans in general (Avison and Cairney 2003; Roberts, Dunkle, and Haug 1994). Traditional stress and coping frameworks would suggest that the same holds true for African Americans who are exposed to stressful discriminatory experiences; perceived control and racial socialization, a practice that may boost individuals' self-esteem regarding racial matters, have both been established as significant correlates of coping with discrimination stress for Black Americans (Keith et al. 2010; Miller, Rote, and Keith 2003). However, earlier studies have established that resources such as mastery are more prevalent among individuals with higher social status (i.e., socioeconomic position), while Black Americans and other individuals with lower statuses tend to possess lower levels of mastery as a result of their perceived societal

marginalization and lack of control (Gurin, Gurin, and Morrison 1978; Hughes and Demo 1989).

John Henryism Active Coping

As stress theory has developed, and unequal patterns of psychosocial resources across groups have been revealed, researchers have indicated that Black Americans may employ culturally relevant active coping strategies while facing racism-structured barriers to success and positive well-being. John Henryism active coping—which James (1994) defines as, "a strong behavioral predisposition to cope actively with psychosocial environmental stressors" (1994, p. 163)—is a widely examined construct used for capturing these attributes. This form of "high effort" coping was named after the folklore of John Henry, an uneducated but strong former slave who won a race against a mechanical steel drill and immediately died of exhaustion following the contest. John Henryism is used to describe strong mindedness and determination that individuals who lack resources draw from to achieve success despite their overexposure to adversity.

Ultimately, the high effort coping and vigor that is required for the active coping style of John Henryism may leave individuals, particularly of low socioeconomic position, vulnerable to poor physical health consequences (i.e., hypertension) over time (James, Hartnett, and Kalsbeek 1983; 1994). The hypothesis of John Henryism has been used to explain a wide variety of coping mechanisms and health outcomes among African Americans, ranging from cardiometabolic outcomes (James, Hartnett, and Kalsbeek 1983; 1994), mental health (Hudson et al. 2016; Kiecolt, Hughes, and Keith 2009; Neighbors, Njai, and Jackson 2007), and various health behaviors (Stevens-Watkins et al.

2016). Researchers have noted that while the health outcomes of John Henryism active coping are not specific to Black Americans (Bennett et al. 2004), this style of active coping is more prevalent among African Americans than non-Hispanic Whites (Neighbors, Njai, and Jackson 2007). Overall trends in the literature on John Henryism active coping suggest that while it may strongly aid Black Americans in overcoming adversity, there are negative health implications that ultimately leads to early health deterioration.

Mental Health and Well-Being among Black Americans

Findings have generally shown that while Blacks tend to experience greater exposure to psychosocial stressors relative to Whites, they also report lower rates of most psychiatric disorders and better self-rated mental health relative to Whites, underscoring the conundrum that researchers refer to as the "race paradox in mental health" (Erving, Thomas, and Frazier 2018; Louie and Wheaton 2019; Mouzon 2013; Brown 2003). Although these findings on mental health among Blacks are yet unclear, research has firmly demonstrated that Black Americans with poor mental health tend to experience more severe, enduring, disabling outcomes that remain untreated compared to Whites (Williams et al. 2007). Perceived discrimination is a significant correlate of mental health that uniquely impacts African Americans and is strongly associated with depressive and anxiety symptoms (Hudson et al. 2012; Kessler, Mickelson, and Williams 1999; Williams and Mohammad 2009).

Furthermore, a bevy of findings suggest that higher levels of subjective well-being ultimately contribute to better health and longevity (e.g., Diener and Chan 2011).

Meta-analyses and systematic review (Chida and Steptoe 2008) demonstrate the robustness of the relationship between positive well-being (e.g., higher levels of life satisfaction, optimism, and sense of humor, and positive moods, etc.) and reduced risk of mortality and greater longevity among individuals. Blacks continue to have higher mortality rates than Whites for most of the leading causes of death (i.e., cardiovascular disease, stroke, cancer, etc.) (CDC/NCHS 2011; Kung et al. 2008; Williams and Mohammed 2009). With use of biomarkers (e.g., allostatic load) researchers have found that there are significant links between the bioaccumulation of stress, race-related stress, and the early "weathering" of health for Black Americans relative to other groups (Chae et al. 2020; Geronimus et al. 2006; Goosby et al. 2018), underscoring mental health as a target of emphasis for health equity researchers. While significant strides have been made to understand mental health among Black Americans, much additional work is necessary to clarify the relationship between perceived discrimination and health. Even less is known about how Blacks are impacted by the potential stress of secondhand discrimination.

For this study, two main hypotheses were tested: 1) vicarious discriminatory experiences will be associated with lower levels of life satisfaction and higher levels of symptoms of depression and anxiety; and 2) psychosocial resources (i.e., mastery, self-esteem, and John Henryism active coping) will monotonically moderate the relationship between major discrimination and mental health such that higher levels of these resources will not offer protection among individuals who vicariously and personally experience major discrimination, which is line with prior literature on race-related stress (Broman, Mavaddat, and Hsu 2000).

METHODS

Study Procedures and Sample

Data for this study are derived from the Nashville Stress and Health Study (NSAHS), which is specifically aimed toward a greater understanding of Black-White and socioeconomic status disparities in health. The NSAHS is a random sample (N = 1252) of 627 Black men and women, and 625 White men and women residing within Davidson County, Tennessee, which includes and extends beyond the greater Nashville, Tennessee area. The study investigators selected Nashville as a site not only because it is the state capital, but because it also includes two large historically Black universities (Fisk and Tennessee State) in addition to the country's oldest historically Black medical school (Meharry Medical College). These conditions made this site desirable as there was an increased likelihood that a representative sample of Black Americans would include individuals of higher socioeconomic position. The investigators contended that the process of disaggregating the health significance of race and socioeconomic status would require adequate representation of Black Americans of higher socioeconomic status.

There were 199 block groups within Davidson County that were randomly selected to obtain the sample. After Survey Sampling International Corporation provided 7000 randomly selected addresses, 3028 eligible households were revealed following a total of 6940 screens. Due to budget and time constraints, the researchers stopped short of screening the full 7,000 addresses. Four stratified samples of adults ages 25 to 65 were then drawn such that half of the individuals were Black and the other half were non-Hispanic White, with comparable numbers of men and women in each racial group. A portion of the block groups were stratified. Black households were oversampled as Black

individuals compromise approximately 28% of Davidson County residents (according to 2010 Census data) as the researches sought to obtain a final sample with enough Black respondents to allow for robust within-group analyses by race. A sampling weight was constructed to account for the complex survey design and data collection process, and to increase confidence in the generalizability for the Black and White population aged 25-65 who resided in Davidson County during the time of the study. Specifically, non-response, on-cooperation, refusals, and non-contact during the screening and interviewing phases were all accounted for by this sampling weight.

After 2400 potential respondents were randomly sampled—one individual from each household—1252 participants successfully completed computer-assisted interviews with interviewers who were race-matched with the respondents and trained by the study investigators. The interviews were conducted in respondents' homes or on Vanderbilt's campus, and averaged about two hours and 45 minutes in length. Data collection lasted from April 2011 to January 2014. For the present study, a subsample of Black Americans will be used (N=627). The NSAHS data set was ideal for addressing the aims of this study because of its sufficient sample of Black Americans for examining gender and social class contrasts, as well as its unique discrimination measures, which will be discussed in the following section.

Measures

Outcome Variables. Mental health was assessed based on one measure of subjective well-being (life satisfaction) and two measures of psychological distress (depressive symptoms and anxiety symptoms). Life satisfaction (α=0.70) was measured

using the sum of a 5-item scale that included “in most ways my life is close to my ideal,” “the conditions of my life are excellent,” “I am satisfied with my life,” “so far I have gotten the important things I want in life,” and “if I could live my life over, I would change almost nothing.” Responses were based on how much the respondents agreed with each statement: (0) a lot, (1) somewhat, (2) a little, and (3) not at all. Past-month depressive symptoms (α=0.89) were captured by using a modified version of the 20-item Center for Epidemiological Studies for Depression (CES-D) scale (Radloff 1977). Examples of the items included “your sleep was restless,” “you felt sad,” and “you could not get “going.” Responses to the questions included (0) not at all, (1) occasionally, (2) frequently, and (3) almost all the time. Past-month anxiety (α=0.83) was measured using a 5-item scale that included “I felt worried over possible misfortunes” “I felt over-excited,” “I felt tense,” “I felt anxious,” and “I felt nervous.” Responses included (0) not at all, (1) somewhat, (2) moderately, and (3) very much.

Independent Variables. To capture the entire racial discrimination experience, multiple forms of racial discrimination were assessed, including personal major experiences of discrimination, vicarious major experiences of discrimination (i.e., discrimination reported by respondents’ spouse, child, other relative and close friend), and the respondents’ daily or “everyday” discrimination experiences. The various forms of major discrimination were all measured based on the Major Experiences of Discrimination instrument (Williams et al. 2008), which is a seven-item instrument that includes items that assess whether the respondents have ever “been unfairly fired or denied a promotion,” “been unfairly treated by the police,” and “been unfairly discouraged by teacher from pursuing a job/career.” Responses were recorded as “yes” or

"no". If respondents answered "Yes", then they were asked to whom the discrimination occurred: (1) self, (2) spouse, (3) child, (4) other relative, or (5) close friend. For the present study, responses of "Yes" for (1) self were separated into a measure of Personal Experiences of Major Discrimination; responses of "Yes" for (2) spouse, (3) child, (4) relative, or (5) close friend were all combined to make a separate measure of Vicarious Experiences of Major Discrimination. Day-to-day experiences of discrimination were measured using the Everyday Discrimination Scale (Williams et al. 1997). The Everyday Discrimination Scale (α=0.85) was comprised of nine items such as "You are treated with less courtesy than other people" and "You receive worse service than other people at restaurants or Stores." Respondents were asked to report the frequency with which these events occur: (0) never, (1) rarely, (2) sometimes, (3) often, and (4) almost always.

Other stressors were captured through the measures of major life events and chronic strains. Major life events were indexed with a 43-item inventory that assesses the lifetime occurrence (0=no, 1=yes) of major and potentially traumatic stressors (Turner and Avison 2003). The measure includes items related to both violent and non-violent stressors (e.g., parental divorce, failing a grade in school), along with items concerning life traumas (e.g., rape, physical and emotional abuse, being injured with a weapon), witnessing violence, receiving information about bad events, and the death of relatives or close friends. Consistent with common practice, each score is a straight count of the number of stressors reported. Chronic strains were measured using a 41-item inventory (α=.86) that captures the daily and chronic stressors across several domains of life such as general strain (e.g., "You're trying to take on too many things at once"), employment strain (e.g., "You want to change jobs but don't feel you can"), relationship strain (e.g.,

"You have a lot of conflict with your partner"), and children (e.g., "A child's behavior is a source of serious concern for you"). Recent life event stressors were measured by 32 items, and respondents were asked to report if each event (e.g., "Did a child die," "Was there a marital separation or divorce," "Did someone have a major financial crisis," and "Was demoted at work or took a pay cut") happened to them or someone close within the past 12 months.

Family social support (α=0.89) was measured using a 16-item scale that included "you feel very close to your family," "your family often lets you know that they think you are a worthwhile person," and "you know that your family has confidence in you." Responses were based on how much the respondents agreed with each statement: (0) very true for you, (1) moderately true for you, (2) somewhat true for you, and (3) not at all true for you. Friend social support (α=0.95) was measured by an 8-item scale that asked respondents about the quality of the relationship that they have with their friends (e.g., "You feel very close to your friends," "You have friends who would always take the time to talk over your problems, should you want to"). Responses included (0) not at all true for you, (1) somewhat true for you, (2) moderately true for you, and (3) very true for you.

Sociodemographic Characteristics. All analyses accounted for gender, age, socioeconomic position, marital status, parental status, and level of racial identity. Gender was coded such that 1=women and 0=men. Age is employed as a continuous measure in years. Socioeconomic position was calculated using the respondents' education level (number of years of education completed), annual household income, and an occupational prestige score which was estimated using the NAM scoring system (Nam and Boyd 2004). The three estimates were standardized and summed to create a score.

During data collection, respondents reported whether they lived with their spouse (0=not living with a spouse, 1=married and living with a spouse), parental status (0=no children, 1=have children), and their level of racial identity centrality (1=strongly disagree to 7=strongly agree; α=0.80).

Moderators. The moderators of this study were captured with measures the respondents' levels of mastery, self-esteem, and John Henryism active coping. The respondents' levels of mastery (α=0.70) were measured using a 7-item scale that included "what happens to you in the future mostly depends on you," and "you can do just about anything you really set your mind to." Responses were based on how much the respondents agreed with each statement: (0) strongly agree, (1) mildly agree, (2) neither agree nor disagree, (3) mildly disagree, and (4) strongly disagree. The respondents' levels of self-esteem (α=0.75) were measured using a 6-item shortened version of Rosenberg's (1986) scale that included "you feel that you have a number of good qualities," "you feel that you are a person of worth at least equal to others," and "you take a positive attitude toward yourself." Responses were based on how much the respondents agreed with each statement: (0) strongly agree, (1) mildly agree, (2) neither agree nor disagree, (3) mildly disagree, and (4) strongly disagree. John Henrysim active coping was included in the present study as a key personal resource that may potentially moderate the relationship between vicarious and personal major discrimination experiences, and mental health. John Henryism active coping (James 1994) was measured using an 12-item scale (α=0.78) that captures respondents' indicators of mental and physical health vigor, unwavering dedication to hard work, and a "single-minded determination" to achieve success. Items in scale include, "Once I make up my mind to do something, I stay with it

until the job is done" "When things don't go the way I want them to, that just makes me work even harder" "I don't let my personal feelings get in the way of doing a job." Responses to these items were (1) completely false, (2) somewhat false, (3) neutral, (4) somewhat true, and (5) completely false.

Analytic Strategy

Prior to the analyses, the data were properly screened and assessed to ensure that they were congruent with linear regression assumptions (Mertler and Vannatta 2013). The Variance Inflation Factor (VIF) was estimated among each variable in the study. The mean VIF was a value of 1.33, which suggests that multicollinearity was not a problem for the key independent variables in the study (Stevens 2001). Bivariate correlations calculations revealed low to moderate associations between the variables, further indicating that they meet the criteria for multiple regression analyses. Following this process, numerous steps were used to address the objectives of the present study. First, the study variables' weighted means and proportions were calculated for the full sample of Black adults (N=627) and presented in Table 4.1. Second, ordinary least square (OLS) regression models were used to examine the relationships between vicariously experienced major discrimination and each of the three outcomes for mental health, which are presented in Table 4.2. Models 1, 3, and 5 in Table 4.2 assessed the relationship between discrimination and mental health for each outcome within the context of other stressors (i.e., major life events, chronic strains, and recent life events), controlling for sociodemographic factors (i.e., gender, age, socioeconomic position, marital status, parental status, and racial identity). Models 2, 4, and 6 in Table 4.2

examined the association between discrimination and mental health for each outcome within the full models that included the respondents' psychosocial resources (i.e., mastery, self-esteem, family support, friend support, and John Henryism active coping). Lastly, several sets of sequential linear regression analyses were conducted to examine the moderating effects of psychosocial resources (mastery, self-esteem and John Henryism active coping) on the relationships between vicarious and personal major discrimination experiences and well-being for the respondents. The results for the moderating effects of mastery, self-esteem, and John Henryism active coping are presented in Tables 4.3-4.5. Models 1, 3, and 5 in Tables 4.3-4.5 estimate the relationship of the interactive effects of psychosocial resources and personally experienced major discrimination, and each outcome for mental health within the full models. Models 2, 4, and 6 estimate the relationship of the interactive effects of psychosocial resources and vicariously experienced major discrimination, and each outcome for mental health within the full models. Sample weights were employed during the analyses to avoid potential oversampling bias in an attempt to account for the disparities between groups. All analyses were performed with Stata, version 14 to account for the complex survey design and sample weighting of the Nashville Stress and Health Study. All analyses were performed with Stata, version 14.

RESULTS

Descriptive Statistics

Table 4.1: Means and Proportions of Sample Characteristics (N=627)

Characteristics	Means/Proportions	SD	Range
Outcome Variables			
Life Satisfaction	9.08	4.20	0-20
Depressive Symptoms	13.83	9.58	0-47
Anxiety Symptoms	3.98	3.48	0-15
Stress Factors			
Major Life Events	8.89	5.11	0-27
Chronic Strains	29.67	9.95	9-64
Recent Life Events	2.07	2.24	0-15
Discrimination-Related Factors			
Discrimination-Vicarious	0.84	1.14	0-9
Discrimination-Self	1.18	1.42	0-7
Everyday Discrimination	9.91	5.84	0-34
Sociodemographic Factors			
Age (Years)	46.19	11.21	22-69
Socioeconomic Position	-0.36	0.74	-2.63-1.79
Marital Status (1=Yes, 0=No)	0.30	0.46	0-1
Parent (1=Yes, 0=No)	0.80	0.40	0-1
Level of Racial Identity	64.18	9.56	17-77
Coping Resources			
Mastery	19.19	5.23	6-28
Self-Esteem	18.93	2.81	7-24
Family Support	36.49	9.57	0-48
Friend Support	17.30	6.70	0-24
Active Coping			
John Henryism	37.44	5.83	0-48

Table 4.1 presents the means and proportions of the sample's characteristics. The average age of the respondents in the sample was 46 years. About 30 percent of the sample was married, and about 80 percent of the sample had children. Coping resources were moderately distributed among the respondents in the sample.

Multivariate Analyses

Table 4.2: Mental Health Regressed on Discrimination

	Life Satisfaction		Depressive Symptoms		Anxiety Symptoms	
	Model 1	*Model 2*	*Model 3*	*Model 4*	*Model 5*	*Model 6*
Gender (1=Women, 0=Men)	0.251	0.453	2.788**	2.007*	0.472	0.194
	(0.410)	(0.336)	(0.991)	(0.854)	(0.298)	(0.294)
Age (Years)	-0.012	-0.008	-0.060	-0.100*	-0.026	-0.030*
	(0.019)	(0.021)	(0.047)	(0.047)	(0.014)	(0.015)
Socioeconomic Position	0.949***	0.656*	-2.934***	-1.313*	-0.442	-0.115
	(0.262)	(0.283)	(0.712)	(0.605)	(0.281)	(0.247)
Married (1=Yes, 0=No)	1.461***	1.410***	-1.916*	-1.374	-0.462	-0.300
	(0.401)	(0.406)	(0.820)	(0.749)	(0.269)	(0.297)
Parent (1=Yes, 0=No)	0.765*	0.441	-3.679**	-2.506*	-1.704***	-1.375***
	(0.373)	(0.385)	(1.193)	(1.123)	(0.228)	(0.300)
Racial Identity	0.043**	0.029*	-0.039	-0.0461	-0.003	-0.010
	(0.015)	(0.013)	(0.063)	(0.0555)	(0.014)	(0.015)
Discrimination-Vicarious	-0.236*	-0.339**	-0.591	-0.127	0.183	0.271*
	(0.108)	(0.103)	(0.495)	(0.473)	(0.164)	(0.137)
Discrimination-Personal	-0.363**	-0.310*	0.173	0.107	-0.259*	-0.270*
	(0.124)	(0.130)	(0.267)	(0.207)	(0.117)	(0.035)
Daily Discrimination	-0.009	0.027	0.487***	0.353***	0.110**	0.079*
	(0.027)	(0.038)	(0.101)	(0.093)	(0.036)	(0.034)
Major Life Events	0.008	0.031	0.186	0.069	0.099	0.069
	(0.041)	(0.035)	(0.112)	(0.123)	(0.071)	(0.071)
Chronic Strains	-0.072*	-0.057*	0.240***	0.180***	0.089***	0.073***
	(0.029)	(0.024)	(0.043)	(0.035)	(0.019)	(0.016)
Recent Life Events	-0.083	-0.082	0.547	0.482	0.126	0.119
	(0.066)	(0.064)	(0.284)	(0.293)	(0.119)	(0.016)
Mastery		0.017		-0.512***		-0.114*
		(0.030)		(0.104)		(0.045)
Self-Esteem		0.268**		-0.477*		-0.172
		(0.094)		(0.219)		(0.113)
Family Support		0.065		-0.137*		-0.046**
		(0.049)		(0.057)		(0.016)
Friend Support		0.041		-0.097		0.015
		(0.029)		(0.061)		(0.023)
John Henryism		0.049		-0.024		0.031
		(0.036)		(0.122)		(0.040)
Constant	9.108***	-1.518	5.577	38.34***	1.710	9.019***
	(1.406)	(2.080)	(3.435)	(5.953)	(1.057)	(2.366)

N	627	627	627	627	627	627
R^2	0.118	0.187	0.405	0.530	0.268	0.323

Standard errors in parentheses; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 4.2 presents the results from the multivariate linear regression analyses of the impact of discrimination on the respondents' well-being. Models 1-6 show the findings of well-being outcomes (life satisfaction, depressive symptoms, and anxiety symptoms) regressed on sociodemographic, stress-related, and coping resource factors. In Model 1, after accounting for sociodemographic factors, results revealed that socioeconomic position, marital status, parental status, and racial identity were all positively associated with greater levels of life satisfaction. Conversely, Model 1 also showed that self-reports of vicarious experiences of major discrimination and personal experiences of major discrimination were both negatively associated with levels of life satisfaction. After accounting for other stressors and coping resources in Model 2, parental status was no longer associated with life satisfaction. Furthermore, Model 2 revealed that chronic strains were negatively associated with life satisfaction, while self-esteem was positively associated with life satisfaction. Socioeconomic position, marital status, parental status, and racial identity all maintained positive relationships with life satisfaction throughout the analyses, and vicarious and personal experiences of major discrimination both remained negatively associated with life satisfaction.

In Model 3, after accounting for sociodemographic factors, results revealed that being a woman, and self-reports of daily discrimination and chronic strains were all positively associated with greater levels of depressive symptoms. Furthermore, Model 3 revealed that socioeconomic position, marital status, and parental status were negatively associated with depressive symptoms. After accounting for other stressors and coping

resources in Model 4, findings showed that gender, socioeconomic position, parental status, daily discrimination, and chronic strains all maintained their relationships with depressive symptoms. Additionally, in Model 4, age was negatively associated with depressive symptoms, while marital status was no longer associated with depressive symptoms. Additionally, mastery, self-esteem, and family support were all negatively associated with depressive symptoms.

Model 5 showed that being a parent and reporting personally experienced major discrimination were both negatively associated with anxiety symptoms after accounting for sociodemographic factors. Conversely, results from Model 5 revealed that reports of everyday discrimination experiences and chronic strains were both positively associated with anxiety symptoms. After accounting for coping resources, Model 6 showed age, mastery, and family support were negatively associated with anxiety symptoms, while parental status and reports of personally experienced major discrimination and everyday discrimination maintained their relationships with anxiety symptoms. Additionally, findings from Model 6 revealed that vicarious experiences of major discrimination were positively associated with anxiety symptoms after accounting for coping resources.

Table 4.3: Mental Health Regressed on Interactive Effects of Mastery and Major Discrimination

	Life Satisfaction		Depressive Symptoms		Anxiety Symptoms	
	Model 1	*Model 2*	*Model 3*	*Model 4*	*Model 5*	*Model 6*
Mastery x PEMD	0.017	---	-0.178**	---	-0.032	---
	(0.023)	---	(0.057)	---	(0.022)	---
Mastery x VEMD	---	-0.034	---	0.098	---	0.032
	---	(0.032)	---	(0.061)	---	(0.026)
Constant	-1.292	-2.324	35.999***	40.631***	8.601**	9.765***
	(2.060)	(2.435)	(6.131)	(6.429)	(2.441)	(2.451)
N	627	627	627	627	627	627
R^2	0.188	0.190	0.544	0.534	0.326	0.326

Unstandardized coefficients from linear models are presented, and standard errors are in parentheses.
Gender, age, SEP, marital & parental status, racial identity, stressors, mastery, & social support were controlled for in the models.
PEMD = Personally Experienced Major Discrimination; VEMD = Vicariously Experienced Major Discrimination.
$^{\phi}p<0.055$, $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

Table 4.3 presents the coefficients of the interactive effects of mastery and experiences of major discrimination—personal and vicarious—on the life satisfaction, depressive symptoms, and anxiety symptoms among the sample of Black adults. Models 1-2 and Models 5-6 revealed that there was no significant relationship between the interactive effects of mastery and major discrimination, and life satisfaction or anxiety symptoms. Models 3-4 showed that there was a negative relationship between the interactive effects of mastery and personally experienced major discrimination, and depressive symptoms. But, the interactive effects of mastery and vicarious major discriminatory experiences were not significantly associated with depressive symptoms.

Table 4.4: Mental Health Regressed on Interactive Effects of Self-Esteem and Major Discrimination

	Life Satisfaction		Depressive Symptoms		Anxiety Symptoms	
	Model 1	*Model 2*	*Model 3*	*Model 4*	*Model 5*	*Model 6*
Self-Esteem x PEMD	-0.036	---	-0.227**	---	-0.015	---
	(0.058)	---	(0.071)	---	(0.065)	---
Self Esteem x VEMD	---	-0.124*	---	-0.275	---	0.066
	---	(0.054)	---	(0.165)	---	(0.108)
Constant	-2.307	-2.668	33.346***	35.796***	8.682***	9.628**
	(2.213)	(2.296)	(5.023)	(6.164)	(2.352)	(3.011)
N	627	627	627	627	627	627
R^2	0.188	0.191	0.535	0.534	0.323	0.325

Unstandardized coefficients from linear models are presented, and standard errors are in parentheses.
Gender, age, SEP, marital & parental status, racial identity, stressors, mastery, & social support were controlled for in the models.
PEMD = Personally Experienced Major Discrimination; VEMD = Vicariously Experienced Major Discrimination.
$^{\phi}p<0.055$, $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

Table 4.4 presents the coefficients of the interactive effects of self-esteem and experiences of major discrimination—personal and vicarious—on the life satisfaction, depressive symptoms, and anxiety symptoms among the sample of Black adults. Results from Model 1 showed that there was no significant relationship between the interactive effects of self-esteem and personal major discriminatory experiences, and life satisfaction. However, Model 2 revealed that the interactive effects of greater levels of mastery and vicarious major discriminatory experiences were associated with lower levels of life satisfaction. Additionally, Model 3 showed that while greater levels of self-esteem negatively moderated the relationship between personally experienced major discrimination and depressive symptoms, there was no significant association between the interactive effects of self-esteem and vicariously experienced major discrimination and depressive symptoms for the respondents in Model 4. Results from Models 5-6

revealed that self-esteem did not significantly moderate the relationship between major discriminatory experiences and anxiety symptoms.

Table 4.5: Mental Health Regressed on Interactive Effects of Active Coping and Discrimination

	Life Satisfaction		Depressive Symptoms		Anxiety Symptoms	
	Model 1	*Model 2*	*Model 3*	*Model 4*	*Model 5*	*Model 6*
John Henryism x PEMD	-0.015	---	-0.060	---	0.002	---
	(0.017)	---	(0.057)	---	(0.028)	---
John Henryism x VEMD	---	-0.024	---	0.094*	---	0.033$^{\phi}$
	---	(0.023)	---	(0.042)	---	(0.017)
Constant	-2.175	-2.429	35.770***	41.874***	9.095***	10.264***
	(2.160)	(2.431)	(6.744)	(5.844)	(2.555)	(2.500)
N	627	627	627	627	627	627
R^2	0.188	0.189	0.533	0.536	0.323	0.328

Unstandardized coefficients from linear models are presented, and standard errors are in parentheses.
Gender, age, SEP, marital & parental status, racial identity, stressors, mastery, & social support were controlled for in the models.
PEMD = Personally Experienced Major Discrimination; VEMD = Vicariously Experienced Major Discrimination.
$^{\phi}p<0.055$, $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

Table 4.5 presents the coefficients of the interactive effects of John Henryism active coping and experiences of major discrimination—personal and vicarious—on the life satisfaction, depressive symptoms, and anxiety symptoms among the sample of Black adults. In Models 1-6, these interactive effects are considered within the context of sociodemographic factors, general stressors, and other exposure to discrimination among the respondents. In Models 1 and 2, results revealed that there was no statistically significant association between interactive effects of major discrimination and life satisfaction, regardless of the target of discrimination. Model 3 showed that the interactive effects of personally experienced major discrimination and John Henryism and personally experienced major discrimination were not significant. However, in

Model 4, the findings reveal that the interactive effects of John Henryism and vicariously experienced major discrimination are positively associated with depressive symptoms. Results from Model 5 revealed no significant relationship between the interactive effects of personally experienced major discrimination and anxiety symptoms. Model 6 showed that the interactive effects of vicarious major discrimination experiences and John Henryism were positively associated with anxiety symptoms ($p<0.055$).

DISCUSSION

Decades of literature have documented the effects of discrimination on the health of racial and ethnic minorities. While researchers are still working to disentangle the mechanisms through which the direct effects of discrimination influence the longevity of Black Americans, less is known about the consequences of secondhand discrimination. The overall goal of this study was to extend our knowledge about how discrimination may indirectly impact the mental health of Black Americans from a stress and coping perspective. Using community sample data from the Nashville Stress and Health Study, multiple study aims were addressed. First, the impact of vicarious experiences of major discrimination on multiple dimensions of mental health and well-being was assessed. Then, the moderating effects of psychosocial resources—mastery, self-esteem, and John Henryism active coping—on the relationship between major discrimination and mental health were tested. This study hypothesized that (1) vicariously experienced major discrimination would be associated with lower levels of life satisfaction and higher levels of depressive and anxiety symptoms, and (2) higher levels of psychosocial resources would not protect the mental health and well-being of the respondents who experience

major discrimination. Overall, the analyses provide support for the inclusion of secondhand discrimination in the stress process paradigm as a significant psychosocial stressor for Black Americans. Furthermore, there may be implications for individuals with higher psychosocial resources, as well as those who cope with the stress of discrimination with John Henryism, an active coping style that is particularly prevalent among African Americans.

Findings from this study partially confirm the first hypothesis. Results from the first set of multivariate linear regressions showed that vicarious and personal major discriminatory experiences were both associated with lower life satisfaction among the Black respondents. These findings are consistent with the wealth of empirical evidence that shows that direct exposure to perceived discrimination negatively impacts the mental health and well-being of Black adults (Banks, Kohn-Wood, and Spencer 2006; Brondolo, Gallo, and Myers 2009; Clark et al. 1999; Gee et al. 2006; Kessler, Mickelson, and Williams 1999; Goosby, Cheadle, and Mitchell 2018; Mouzon et al. 2017; Nguyen et al. 2018; Paradies 2006; Pascoe and Richman 2009; Williams et al. 1997), and an emerging body of literature that documents the health implications of secondhand exposure to discrimination and racism (Bor et al. 2018; Boulter et al. 2015; Goosby and Heidbrink 2013; Heard-Garris et al. 2018; Martz et al. 2019; McFarland et al. 2018; Quinlan et al. 2016; Sewell, Jefferson, and Lee 2016).

Surprisingly, personally experienced major discrimination was inversely related to anxiety symptoms, which somewhat contradicts the overall trends in the literature on discrimination and mental health (Paradies et al. 2015; Williams et al. 1997). Furthermore, after accounting for coping resources, findings revealed that vicariously

experienced major discrimination was associated with higher levels of anxiety symptoms while direct exposure to major discrimination maintained its negative relationship with symptoms of anxiety. This stark contrast in the direction of these relationships highlights the differences in how the type of exposure to discrimination can uniquely impact individuals. Findings such as this may suggest that individuals who have personally experienced discrimination could be less tense and nervous because they approach life with the expectation that they may be treated unfairly, while the misfortunes of important others due to discrimination may worry them more because they have even less control over what may happen to others.

Contradictory to the first hypothesis, neither direct, nor indirect, exposure to major discrimination was associated with depressive symptoms. However, everyday discrimination experiences were associated with more depressive and anxiety symptoms, which is congruent with findings from past studies (Kessler, Mickelson, and Williams 1999; Mouzon et al. 2017; Pachter et al. 2018). The implications of these findings are two-fold. First, stress researchers have provided decades of evidence to show that repeated exposure to social stressors over time, such as everyday discrimination, may lead to the "weathering" and deterioration of health through an elicited dysregulated stress response (Geronimus et al. 2006; McEwen 1998; Seeman et al. 1997). Symptoms of depression and anxiety are likely the mental health manifestations of this segment of the stress process. Though major discrimination (i.e., being unfairly fired from a job, being denied a bank loan, etc.) may acutely impact the well-being individuals, these experiences tend to be more spread out over the life course in comparison to daily discrimination experiences. The Everyday Discrimination Scale (Williams et al. 1997)

captures the day-to-day discrimination experiences that are more subtle (i.e., being treated with less courtesy, receiving poorer quality service than others in public spaces, people doubting an individual's ability or intelligence, etc.), but repeatedly threaten individuals' humanity, dignity, and concepts of self. This finding from the present study is also consistent with previous work that showed that everyday discrimination is a more robust predictor of psychological distress relative to major discrimination (Kessler, Mickelson, and Williams 1999; Wheaton et al. 2018; Williams et al. 1997).

Second, these findings suggest that the life satisfaction and anxiety symptoms capture aspects of mental health and well-being that depressive symptoms may not capture for the individuals in this sample. Contrarily, daily discrimination was not associated with life satisfaction, further emphasizing the notion that major and everyday discriminatory experiences are perhaps impacting individuals through different mechanisms. Ultimately, these findings support a multiple-outcome approach when assessing the effects of discrimination on mental health and well-being among African Americans.

Several mental health implications were revealed as the moderating effects of psychosocial resources were tested. Findings from the present study offer support for the second hypothesis. First, results showed that while mastery appeared to buffer the negative effects of personal major discriminatory experiences, namely depressive symptoms, mastery had no significant effect on the relationship between indirect major discrimination and the study's dimensions of mental health and well-being. This suggests that mastery, a personal psychosocial resource, does not offer protection for individuals

as they may encounter secondhand discrimination through the major discriminatory experiences of their loved ones.

Second, when assessing the interactive effects of self-esteem major discrimination on mental health and well-being, findings revealed that while greater levels of self-esteem buffered the negative effects of personal major discriminatory experiences, self-esteem was not protective against the effects of vicariously experienced major discrimination for life satisfaction. Moreover, with regards to life satisfaction, the results suggest that Black individuals with higher levels of self-esteem may be more vulnerable to indirect exposure to major discrimination. These results suggest that individuals with higher levels of self-esteem may be more vulnerable to the negative impact of their loved ones' experiences of major discrimination, likely because those experiences are out of their control.

Lastly, consistent with previous findings from a nationally representative sample (Neighbors, Njai, and Jackson 2007), John Henryism active coping was not significantly associated with any of the well-being outcomes among the respondents in this sample, although findings on this relationship are still mixed (Hudson et al. 2016). But, when John Henryism was considered interactively with the effects of major discrimination, findings revealed an association between these effects and more depressive and anxiety symptoms. Even more noteworthy was the way that active coping interacted with personal and vicarious experiences of major discrimination distinctively; while active coping negatively moderated the relationship between personally experienced major discrimination and anxiety symptoms, active coping positively moderated the relationship between vicarious major discrimination experiences and anxiety symptoms among the

respondents. Essentially, this implies that individuals with higher levels of self-determination and work ethic aimed towards their own experiences may be more vulnerable when this style of active coping cannot be used within the context of their loved ones' misfortunes.

Study Limitations and Implications for Future Research

Although this study contributes significant findings to the literature on discrimination and health, there were several limitations. First, the data were derived from a community sample that may not be nationally representative of Black Americans. This may somewhat constrain the generalizability of the findings; however, the sample was randomly selected increasing generalizability within the targeted geographic region. Second, the data were collected cross-sectionally, which limits the ability to determine causal relationships among the variables in the array of models. Third, the discrimination and other stress exposure measures were measured retrospectively, which increases their susceptibility to recall bias. Fourth, only the Major Experiences of Discrimination scale was life-course adapted to include the indirect aspect of discrimination. The Every Day Discrimination instrument is a scale that would limit the respondents' ability to provide answers on others' behalf. As a result, vicarious day-to-day experiences of discrimination could not be assessed in this study.

Future research should continue to attempt to determine what psychosocial resources might offer protective mental health benefits against discrimination. While certain resources, (i.e., mastery, self-esteem, and active coping) may offer protection in the face of general stress exposure, they may not offer the same benefits for individuals

who endure the negative effects of discrimination, whether directly or indirectly. Racial socialization and mental health treatment may be solid targets for intervention. Additionally, healthcare practitioners should also consider how individuals may be impacted by the adverse discriminatory experiences that their loved ones may face. More investigation of how secondhand experiences of discrimination affect health is needed.

REFERENCES

Aspinwall, Lisa G., and Shelley E. Taylor. 1992. "Modeling Cognitive Adaptation: A Longitudinal Investigation of the Impact of Individual Differences and Coping on College Adjustment and Performance." *Journal of Personality and Social Psychology*, 63(6): 989-1003.

Avison, William R., and John Cairney. 2003. "Social Structure, Stress, and Personal Control." In S. H. Zarit, L. I. Pearlin, and K. W. Schaie (Eds.), *Societal Impact on Aging. Personal Control in Social and Life Course Contexts* (p. 127-164). Springer Publishing Co.

Banks, Kira H., Laura P. Kohn-Wood, and Michael Spencer. 2006. "An Examination of the African American Experience of Everyday Discrimination and Symptoms of Psychological Distress." *Community Mental Health Journal*, 42(6): 555-570.

Bennett, Gary G., Marcellus M. Merritt, John J. Sollers III, Christopher L. Edwards, Keith E. Whitfield, Dwayne T. Brandon, and Reginald D. Tucker. 2004. "Stress, Coping, and Health Outcomes among African-Americans: A Review of the John Henryism Hypothesis." *Psychology and Health*, 19(3): 369-383.

Bor, Jacob, Atheendar S. Venkataramani, David R. Williams, and Alexander C. Tsai. 2018. "Police Killings and Their Spillover Effects on the Mental Health of Black Americans: A Population-Based, Quasi-Experimental Study." *Lancet*, 392: 302-310.

Boulter, Alexis C., Jacklyn Quinlan, Aida T. Miro-Herrans, Laurel N. Pearson, Nubiana L. Todd, HEAT Steering Committee, Clarence C. Gravlee, and Connie J. Mulligan. 2015. "Interaction of *Alu* Polymorphisms and Novel Measures of Discrimination in Association with Blood Pressure in African Americans Living in Tallahassee, Florida." *Human Biology*, 84(4): 295-305.

Braveman, Paula A., Catherine Cubbin, Susan Egerter, David R. Williams, and Elsie Pamuk. 2010. "Socioeconomic Disparities in Health in the United States: What the Patterns Tell Us." *American Journal of Public Health*, 100: S186-S196.

Braveman, Paula. 2014. "What is Health Equity: And How Does a Life-Course Approach Take Us Further Toward It?" *Maternal and Child Health Journal*, 18(2): 366-372.

Broman, Clifford L., Roya Mavaddat, and Shu-yao Hsu. 2000. "The Experience and Consequences of Perceived Racial Discrimination: A Study of African Americans." *Journal of Black Psychology*, 26(2): 165-180.

Brown, Danice L. 2008. "African American Resiliency: Examining Racial Socialization and Social Support as Protective Factors." *Journal of Black Psychology*, 34(1): 32-48.

Brown, George W., and Tirril Harris. 1978. “Social Origins of Depression: A Reply.” *Psychological Medicine,* 8(4): 577-588.

Brown, Tony N. 2003. “Critical Race Theory Speaks to the Sociology of Mental Health: Mental Health Problems Produced by Racial Stratification.” *Journal of Health and Social Behavior*, 292-301.

Cassel, John. 1976. “The Contribution of the Social Environment to Host Resistance: The Fourth Wade Hampton Frost Lecture.” *American Journal of Epidemiology,* 104(2): 107-123.

Chae, David H., Yijie Wang, Connor D. Martz, Natalie Slopen, Tiffany Yip, Nancy E. Adler, Thomas E. Fuller-Rowell, Jue Lin, Karen A. Matthews, Gene H. Brody, Erica C. Spears, Eli Puterman, and Elissa S. Epel. 2020. “Racial Discrimination and Telomere Shortening among African Americans: The Coronary Artery Risk Development in Young Adults (CARDIA) Study.” *Health Psychology*, 39(3): 209-219.

Chida, Yoichi, and Andrew Steptoe. 2008. “Positive Psychological Well-Being and Mortality: A Quantitative Review of Prospective Observational Studies.” *Psychosomatic Medicine,* 70(7): 741-756.

Clark, Rodney, Norman B. Anderson, Vernessa R. Clark, and David R. Williams. 1999. “Racism as a Stressor for African Americans: A Biopsychosocial Model.” *American Psychologist*, 54(10): 805-816.

Cobb, Sidney. 1976. “Social Support as a Moderator of Life Stress.” *Psychosomatic Medicine*, 38(5): 300-314.

Colen, Cynthia G., Qi Li, Corrine Reczek, and David R. Williams. 2019. “The Intergenerational Transmission of Discrimination: Children’s Experiences of Unfair Treatment and Their Mothers’ Health at Midlife.” *Journal of Health and Social Behavior*, 60(4): 474-492.

Constantine, Madonna G., Leo Wilton, and Leon D. Caldwell. 2011. “The Role of Social Support in Moderating the Relationship Between Psychological Stress and Willingness to Seek Psychological Help among Black and Latino College Students.” *Journal of Counseling*, 6(2): 155-165.

Diener, Ed, and Micaela Y. Chan. 2011. “Happy People Live Longer: subjective Well-Being Contributes to Health and Longevity.” *Applied Psychology: Health and Well-Being*, 3(1): 1-43.

Erving, Christy L., Courtney S. Thomas, and Cleothia Frazier. 2018. “Is the Black-White Mental Health Paradox Consistent Across Gender and Psychiatric Disorders?” *American Journal of Epidemiology*, 188(2): 314-322.

Farmer, Heather R., Linda A. Wray, and Jason R. Thomas. 2019. “Do Race and Everyday Discrimination Predict Mortality Risk? Evidence from the Health and Retirement Study.” *Gerontology and Geriatric Medicine*, 5: 1-9.

Feagin, Joe R. 1991. “The Continuing Significance of Race: Antiblack Discrimination in Public Places.” *American Sociological Review*, 56(1): 101-116.

Gee, Gilbert C., and Chandra L. Ford. 2011. “Structural Racism and Health Inequities: Old Issues, New Directions.” *Du Bois Review*, 8(1): 115-132.

Gee, Gilbert C., Katrina M. Walsemann, and Elizabeth Brondolo. 2012. “A Life Course Perspective on How Racism May Be Related to Health Inequities.” *American Journal of Public Health*, 102: 967-974.

Geronimus, Arline T., Margaret Hicken, Danya Keene, and John Bound. 2006. “‘Weathering’ and Age Patterns of Allostatic Load Scores among Blacks and Whites in the United States.” *American Journal of Public Health*, 96(5): 826-833.

Goosby, Bridget J., and Chelsea Heidbrink. 2013. “Transgenerational Consequences of Racial Discrimination for African American Health.” *Sociology Compass*, 7(8): 630-643.

Goosby, Bridget J., Sarah Malone, Elizabeth Richardson, Jacob E. Cheale, and Deadric Williams. 2015. “Perceived Discrimination and Markers of Cardiovascular Risk among Low-Income African American Youth.” *American Journal of Human Biology*, 27(4): 546-552.

Goosby, Bridget J., Jacob E. Cheadle, and Colter Mitchell. 2018. “Stress-Related Biosocial Mechanisms of Discrimination and African American Health Inequities.” *Annual Review of Sociology*, 44: 319-340.

Gurin, Patricia, Gerald Gurin, and Betty M. Morrison. 1978. “Personal and Ideological Aspects of Internal and External Control.” *Social Psychology*, 41(4): 275-296.

Harrell, Shelly P. 2000. “A Multidimensional Conceptualization of Racism-Related Stress: Implications for the Well-Being of People of Color.” *American Journal of Orthopsychiatry*, 70(1): 42-57.

Heard-Garris, Nia, M. Cale, L. Camaj, M. C. Hamati, T. P. Dominguez. 2018. “Transmitting Trauma: A Systematic Review of Vicarious Racism and Child Health.” *Social Science and Medicine*, 199: 230-240.

Hudson, Darrell L., Kai M. Bullard, Harold W. Neighbors, Arline T. Geronimus, Juan Yang, James S. Jackson. 2012. "Are Benefits Conferred with Greater Socioeconomic Position Undermined by Racial Discrimination among African American Men?" *Journal of* Men's *Health*, 9(2): 127-136.

Hudson, Darrell L., Harold W. Neighbors, Arline T. Geronimus, and James S. Jackson. 2016. "Racial Discrimination, John Henryism, and Depression among African Americans." *Journal of Black Psychology*, 42(3): 221-243.

Hughes, Michael, and David H. Demo. 1989. "Self-Perceptions of Black Americans Self-Esteem and Personal Efficacy." *American Journal of Sociology*, 95(1): 132-159.

Hughes, Michael, K. Jill Kiecolt, Verna M. Keith, and David H. Demo. 2015. "Racial Identity and Well-Being among African Americans." *Social Psychology Quarterly*, 78(1): 25-48.

Kiecolt, Jill K., Micheal Hughes, and Verna M. Keith. 2009. "Can a High Sense of Control and John Henryism Be Bad for Mental Health?" *The Sociological Quarterly*, 50(4): 693-714.

Keith, Verna M., Karen D. Lincoln, Robert Joseph Taylor, and James S. Jackson. 2010. "Discriminatory Experiences and Depressive Symptoms among African American Women: Do Skin Tone and Mastery Matter?" *Sex Roles*, 62(1-2): 48-59.

Kessler, Ronald C., Kristin D. Mickelson, and David R. Williams. 1999. "The Prevalence, Distribution, and Mental Health Correlates of Perceived Discrimination in the United States." *Journal of Health and Social Behavior*, 40(3): 208-230.

Kung, Hsiang-Ching, Donna L. Hoyert, Jiaquan Xu, and Sherry L. Murphy. 2008. "Deaths: Final Data for 2005. *National Vital Statistics Reports*, 56(10): 1-20.

James, Sherman A., Sue A. Hartnett, and William D. Kalsbeek. 1983. "John Henryism and Blood Pressure Differences among Black Men." *Journal of Behavioral Medicine*, 6(3): 1983.

James, Sherman. 1994. "John Henryism and the Health of African-Americans." *Culture, Medicine, and Psychiatry*, 18: 163-182.

Lazarus, Richard S., and Susan Folkman. 1984. *Stress, Appraisal, and Coping*. Springer Publishing Company.

Lewis, Tene T., Courtney D. Cogburn, and David R. Williams. 2015. "Self-Reported Experiences of Discrimination and Health: Scientific Advances, Ongoing

Controversies, and Emerging Issues." *Annual Review of Clinical Psychology*, 11: 407-440.

Louie, Patricia, and Blair Wheaton. 2018. "Prevalence and Patterning of Mental Disorders Through Adolescence in 3 Cohorts of Black and White Americans." *American Journal of Epidemiology*, 187(11): 2332-2338.

Martz, Connor D., Amani M. Allen, Thomas E. Fuller-Rowell, Erica C. Spears, S. Sam Lim, Cristina Drenkard, Kara Chung, Evelyn A. Hunter, David H. Chae. 2019. *Journal of Racial and Ethnic Health Disparities*, 6(5): 1044-1051.

McEwen, Bruce S. 1998. "Stress, Adaptation, and Disease: Allostasis and Allostatic Load." *Annals of the New York Academy of Sciences*, 840(1): 33-44.

McFarland, Michael J., John Taylor, Cheryl A. S. McFarland, and Katherine L. Friedman. 2018. "Perceived Unfair Treatment by Police, Race, and Telomere Length: A Nashville Community-based Sample of Black and White Men." *Journal of Health and Social Behavior*, 59(4): 585-600.

Mertler, Craig A., and Rachel Vannatta. 2013. *Advanced and Multivariate Statistical Methods: Practical Application and Interpretation (Fifth Edition)*. Glendale, CA: Pyrczak Publishing.

Meyer, Ilan H., Sharon Schwartz, and David M. Frost. 2008. "Social Patterning of Stress and Coping: Does Disadvantaged Social Status Confer More Stress and Fewer Coping Resources?" *Social Science and Medicine*, 67(3): 368-379.

Miller, Byon, Sunshine M. Role, and Verna M. Keith. 2013. "Coping with Racial Discrimination: Assessing the Vulnerability of African Americans and the Mediated Moderation of Psychosocial Resources." *Society and Mental Health*, 3(2): 133-150.

Mouzon, Dawne. 2013. "Can Family Relationships Explain the Race Paradox in Mental Health?" *Journal of Marriage and Family*, 75: 470-485.

Mouzon, Dawne M., Robert Joseph Taylor, Verna M. Keith, Emily J. Nicklett, and Linda M. Chatters. 2017. "Discrimination and Psychiatric Disorders among Older African Americans." *International Journal of Geriatric Psychiatry*, 32(2): 175-182.

Nam, Charles B., and Monica Boyd. 2004. "Occupational Status in 2000: Over a Century of Census-Based Measurement." *Population Research and Policy Review*, 23(4): 327-358.

Neighbors, Harold W., Rashid Njai, and James S. Jackson. 2007. “Race, Ethnicity, John Henryism, and Depressive Symptoms: The National Survey of American Life Adult Reinterview.” *Research in Human Development*, 4(1-2): 71-87.

Nguyen, Ann W., Linda M. Chatters, Robert Joseph Taylor, and Dawn M. Mouzon. 2016.
Social Support from Family and Friends and Subjective Well-Being of Older African Americans.” *Journal of Happiness Studies*, 17(3): 959-979.

Pachter, Lee M., Cleopatra H. Caldwell, James S. Jackson, and Bruce A. Bernstein. 2018. “Discrimination and Mental Health in a Representative Sample of African-Americans and Afro-Caribbean Youth.” *Journal of Racial and Ethnic Health Disparities*, 5(4): 831-837.

Pager, Devah and Hana Shepherd. 2008. “The Sociology of Discrimination: Racial Discrimination in Employment, Housing, Credit, and Consumer Markets.” *Annual Review of Sociology*, 34: 181-209.

Paradies, Yin, Jehonathan Ben, Nida Denson, Amanuel Elias, Naomi Priest, Alex Pieterse, Arpana Gupta, Margaret Kelaher, and Gilbert Gee. 2015. “Racism as a Determinant of Health: A Systematic Review and Meta-Analysis.” *PLoS ONE*, 10(9): 1-48.

Pascoe, Elizabeth A., and Laura Smart Richman. 2009. “Perceived Discrimination and Health: A Meta-Analytic Review.” *Psychological Bulletin*, 135(4): 531-554.

Pearlin, Leonard I. 1981. “The Stress Process.” *Journal of Health and Social Behavior*, 22(4): 337-356.

Pearlin, Leonard I. 1999. “Stress and Mental Health: A Conceptual Overview.” In A. V. Horwitz and T. L. Scheid (Eds.), *A Handbook for the Study of Mental Health: Social Contexts, Theories, and Systems* (p.161-175). Cambridge University Press.

Quinlan, Jacklyn, Laurel N. Pearson, Christopher J. Clukay, Miaisha M. Mitchell, Qasimah Boston, Clarence C. Gravlee, and Connie Mulligan. 2016. “Genetic Loci and Novel Discrimination Measures Associated with Blood Pressure Variation in African Americans Living in Tallahassee.” *PLoS ONE*, 11(12): e0167700. https://doi.org/10.1371/journal.pone.0167700.

Radloff, Lenore S. 1977. “The CES-D Scale: A Self-Report Depression Scale for Research in the General Population.” *Applied Psychological Measurement*, 1(3): 385-401.

Roberts, Beverly L., Ruth Dunkle, and Marie Haug. 1994. “Physical, Psychological, and Social Resources as Moderators of the Relationship of Stress to Mental Health of the Very Old.” *Journal of Gerontology*, 49(1): S35-S43.

Rosenberg, Morris. 1965. *Society and the Adolescent Self-Image.* Princeton, NJ: Princeton University Press.

Seeman, Teresa E., Burton H. Singer, John W. Rowe, Ralph I. Horwitz, and Bruce S. McEwen. 1997. "Price of Adaptation—Allostatic Load and its Health Consequences." *Archives of Internal Medicine*, 157: 2259-2268.

Sellers, Robert M., Cleopatra H. Caldwell, Karen H. Schmeelk-Cone, and Marc A. Zimmerman. 2003. "Racial Identity, Racial Discrimination, Perceived Stress, and Psychological Distress among African American Young Adults." *Journal of Health and Social Behavior*, 43 302-317.

Sewell, Abigail A., Kevin A. Jefferson, and Hedwig Lee. 2016. "Living Under Surveillance: Gender, Psychological Distress, and Stop-Questions-and-Frisk Policing in New York City." *Social Science and Medicine*, 159:1-13.

Statistics, National Center for Health. Health, United States: With a Special Feature on Socioeconomic Status and Health. Hyattsville, MD: 2011.

Steel, E., J. Mitchell, E. Greywolf, D. Belle, W. Chang, and R. B. Schuller. 1982. "The human Cost of Discrimination." In D. Belle (Ed.), *Lives in Stress: Women and Depression* (pp. 109-119). Beverly Hills, CA: Sage Publications.

Stevens, James P. 2001. *Applied Multivariate Statistics for the Social Sciences* (4th ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.

Stevens-Watkins, Danelle, Joi-Sheree' Knighton, Kristin Allen, Sycarah Fisher, Candice Crowell, Carlos Mahaffey, Carl Leukfeld, and Carrie Oser. 2016. "John Henryism Active Coping as a Cultural Correlate of Substance Abuse Treatment Participation among African American Women." *Journal of Substance Abuse Treatment*, 63: 54-60.

Tatum, Beverly D. 1987. *Assimilation Blues: Black Families in a White Community*. New York: Greenwood Press.

Taylor, Shelley E., and Jonathon D. Brown. 1988. "Illusion and Well-Being: A Social Psychological Perspective on Mental Health." *Psychological Bulletin*, 193-210.

Thoits, Peggy A. 1995. "Stress, Coping, and Social Support Processes: Where are We? What Next?" *Journal of Health and Social Behavior*, Extra Issue: 53-79.

Thoits, Peggy A. 2010. "Stress and Health: Major Findings and Policy Implications." *Journal of Health and Social Behavior*, 51: S41-S53.

Turner, R. Jay, and William R. Avison. 2003. “Status Variations in Stress Exposure: Implications for the Interpretation of Research on Race, Socioeconomic Status, and Gender.” 2003. *Journal of Health and Social Behavior*, 44(4): 488-505.

Turner, R. Jay, and Robyn L. Brown. 2010. “Social Support and Mental Health.” In *A Handbook for the Study of Mental Health: Social Contexts, Theories, and Systems* (pp. 200-212). Cambridge University Press.

Utsey, Shawn O. 1999. “Development and Validation of a Short Form of the Index of Race-Related Stress (IRRS)-Brief Version.” *Measurement and Evaluation in Counseling and Development*, 32(3): 149-167.

Wheaton, Felicia V., Courtney S. Thomas, Carly Roman, and Cleopatra M. Abdou. 2018. “Discrimination and Depressive Symptoms among African American Men Across the Adult Lifecourse.” *Journals of Gerontology: Psychological Sciences*, 73(2): 208-218.

Williams, David R., Yan Yu, James S. Jackson, and Norman B. Anderson. 1997. "Racial Differences in Physical and Mental Health: Socio-Economic Status, Stress and Discrimination." *Journal of Health Psychology.* 2(3): 335-351.

Williams, David R., Hector M. Gonzalez, Harold Neighbors, Randolph Nesse, Jamie M. Abelson, Julie Sweetman, and James S. Jackson. 2007. “Prevalence and Distribution of Major Depressive Disorder in African Americans, Caribbean Blacks, and Non-Hispanic Whites.” *Archives of General Psychiatry*, 64: 305-315.

Williams, David R., Hector M. Gonzalez, Stacey Williams, Selina A. Mohammed, Hashim Moomal, and Dan J. Stein. 2008. “Perceived Discrimination, Race and Health in South Africa.” *Social Science and Medicine*, 67(3): 441-452.

Williams, David R., and Selina A. Mohammed. 2009. “Discrimination and Racial Disparities in Health: Evidence and Needed Research.” *Journal of Behavioral Medicine*, 32(1): 1-38.

Williams, David R., Naomi Priest, and Norman Anderson. 2016. “Understanding Associations between Race, Socioeconomic Status and Health: Patterns and Prospects.” *Health Psychology*, 35(4): 407-411.

Williams, David R., Jourdyn A. Lawrence, Brigette A. Davis, and Cecilia Vu. 2019. “Understanding How Discrimination Can Affect Health.” *Health Services Research*, 54: 1374-1388.

Williams, David R., Jourdyn A. Lawrence, and Brigette A. Davis. 2019. “Racism and Health: Evidence and Needed Research.” *Annual Review of Public Health*, 40: 105-125.

CHAPTER V

CONCLUSION

The objectives of this dissertation were propelled by the overarching question of how indirect exposure to discriminatory experiences impacts the well-being of Black Americans. Systematic review and meta-analysis have shown that over the past several decades, social scientists have primarily investigated the health effects of perceived discrimination to determine how direct exposure to discrimination shapes health outcomes (Paradies et al. 2015). To address part of this gap in the literature, this dissertation examines how personal and vicarious major discriminatory experiences impact the mental health of individuals using a diverse all-Black sample from a southern community, highlighting the within-group differences and key factors that influence this relationship of major discrimination and mental health. A three-study approach was used to investigate these issues, and the findings from these three studies have implications for health equity research, health care practitioners, and policymakers.

Summary of Key Findings

Chapter 2: Study 1

Study one investigated the social epidemiology of direct and indirect exposure to major discrimination among the Black adults in the sample. The purpose of this study was to test the likelihood that individuals would self-report personal and vicarious major discriminatory experiences based on their sociodemographic characteristics (gender, age, socioeconomic position, marital status, parental status, neighborhood racial composition, and racial identity), exposure to everyday discrimination and other stressors (major life

events, chronic strains, and recent life events), and social support (family cohesion/pride and support from friends). There were three hypotheses that were tested for this study: 1) Black men in the sample will have higher odds of reporting personal major discriminatory experiences, and sociodemographic factors and stress exposure will all be positively associated with the reporting of both personal and vicarious major discriminatory experiences; 2) Black women will have higher odds for reporting vicarious major discriminatory experiences, and sociodemographic factors, stress exposure, and social support will all be positively associated with reporting vicariously experienced major discrimination; and 3) the interactive effects of gender and marital status will be positively associated with the likelihood of reporting vicarious major discriminatory experiences.

Findings from the logistic regression analyses presented in chapter two offered general support for these hypotheses. Similar to findings from previous work (Borell et al. 2006; Carter 2007; Fischer and Shaw 1999; Kessler, Mickelson, and Williams 1999; McCord and Ensminger 1997; Utsey et al. 2002), Black men were more likely to report major discrimination that they personally experienced compared to Black women. Vicarious experiences of major discrimination, however, were more likely to be reported by Black women, which was in alignment with the second hypothesis. These findings are largely intuitive, given that Black women tend to marry Black men (Banks 2011) and are burdened with the "cost of caring" for their loved ones (England and Folbre 1999; Kessler and McLeod 1984; Smith and Rose 2011).

In opposition to the first and second hypotheses, the odds of reporting major discriminatory experiences were not associated with the respondents' age, parental status,

neighborhood racial composition, or racial identity. This finding ultimately suggests that direct exposure to discrimination may be ubiquitous and pervasive across all segments of the Black population (Kessler, Mickelson, and Williams 1999; Williams and Mohammed 2009). However, congruent with the first hypothesis, greater levels of exposure to everyday discriminatory experiences and general stressors—major life events and recent life events—were associated with higher odds of reporting personally experienced major discrimination among the respondents in the sample. Previous studies have shown that African Americans tend to be overexposed to psychosocial stressors relative to other groups, and many adverse experiences that are endured by Blacks may be patterned by racism (Williams and Mohammed 2009). For example, findings have shown that Black Americans face greater exposure to neighborhood stressors and economic hardships (Pager and Shepherd 2008; Williams, Priest, and Anderson 2016), which researchers have suggested may have been influenced by racism and their marginalized social status (Pearlin et al. 2005; Williams and Mohammed 2009).

While the observed relationship between sociodemographic factors and tested odds for reported major discrimination largely contradicted hypotheses one and two, social support was positively associated with the likelihood of reporting vicarious discriminatory experiences, offering support for the second hypothesis. Based on these results, it is likely that individuals who are close with their friends and have an open, supportive line of communication may be more likely to be indirectly exposed to their major discrimination experiences. This finding underscores the importance of studying secondhand discrimination and its consequences and warrants further investigation from researchers.

Hypothesis three was also confirmed after findings revealed that the interactive effects of gender and marital status were associated with the likelihood of reporting vicarious experiences of major discrimination. Specifically, the results from study one show that Black women who are married are about three times more likely to be exposed to vicarious major discriminatory experiences. This finding was not particularly shocking considering what the previous findings in this study, and other studies, have shown. Again, Black women tend to marry Black men (Banks 2011) and disproportionately endure the "cost of caring" for their loved ones (England and Folbre 1999; Kessler and McLeod 1984; Smith and Rose 2011). Furthermore, this finding emphasizes how Black women are uniquely impacted by secondhand discrimination, particularly when they are married to Black men. Future research should further examine how the roles Black women serve in the lives of their loved ones may overexpose them to race-related stressors. Furthermore, healthcare providers should consider interventions that provide support for Black women, who may be overexposed to the effects of secondhand discrimination.

Chapter 3: Study 2

Study two assessed the impact of vicarious major discriminatory experiences on the psychological distress levels of the Black Americans, while observing within-group differences in outcomes. Overall, this study hypothesized that the Black adults in the sample would be negatively impacted (i.e., have higher levels of psychological distress) when other important people in their lives experienced major discrimination. During the pre-analysis phase of the study, statistically significant gender differences were revealed

for the outcomes in psychological distress showing higher levels among the women in the sample, which is consistent with findings from past studies (Almeida and Kessler 1998; Keith 1993). These emergent gender differences in the outcome variable, psychological distress, warranted further exploration and led to an analysis of three separate subsamples in the Nashville Stress and Health Study: the subsample of all Black adults, the subsample of Black women, and the subsample of Black men. Although differences in outcomes were expected, there was no hypothesis that Black women and men would differ in the direction of the association between vicarious discriminatory experiences and psychological distress. In other words, it was expected that both Black men and women would be similarly impacted by indirect exposure to major discrimination.

Findings from multivariate linear regression revealed that there was no significant association between vicarious major discriminatory experiences and psychological distress among the full sample of Black adults, which was contradictory to the study's overall hypothesis. Furthermore, while at one point during the analysis personal major discriminatory experiences were positively associated with levels of psychological distress among all Black adults in the sample, the association was nullified after accounting for everyday discrimination experiences. This finding is consistent with previous work that has shown that chronic, daily discrimination is a more robust predictor of health outcomes than acute, major discriminatory experiences (Kessler, Mickelson, and Williams 1999; Wheaton et al. 2018; Williams et al. 1997).

Partial support was offered to the hypothesis, however, when the relationship between indirect exposure to major discrimination and psychological distress was assessed among the gender-stratified subsamples. Specifically, results showed that among

the sample of Black women, vicarious major discriminatory experiences were positively associated with greater levels of psychological distress. The implications of this finding are two-fold. First, Black women may be overburdened by their secondhand exposure to major discrimination, leaving them more vulnerable to its mental health consequences. Based on their important roles to the people who they are closely tied to, they may face excess exposure to major discrimination. For example, as the findings from Study one showed, Black women who are married have higher odds of being exposed to secondhand major discrimination. Second, this finding emphasizes the need for a more nuanced approach to studying mental health among Black Americans. Every individual in the Black population in the United States does not share a monolithic experience, and the differences within the group must be elucidated and accounted for if we hope to better understand health disparities along racial lines.

The study's main hypothesis was contested again, however, after findings revealed that there was no association between vicarious major discriminatory experiences and psychological distress among the Black men in the sample. This finding is most likely also related to findings from Study one, which show that Black men have lower odds of reporting exposure to vicarious major discrimination. But it is important to note that this finding from Study two does not imply that Black men are not affected by secondhand discrimination; assuming that Black men are not impacted by major discrimination, direct or indirect, may be an oversight by researchers. What it might suggest instead is that there is a component of the psychological distress construct that captures these effects for Black women but not for Black men, and that further

investigation is needed to better understand the relationship between major discrimination and Black men.

Chapter 4: Study 3

Study three examined how vicarious major discriminatory experiences might impact the mental health and well-being of a sample of Black adults. Specifically, this study tested the nature of this relationship among several outcomes for mental health and well-being: life satisfaction, depressive symptoms, and anxiety symptoms. Furthermore, this study examined this association while accounting for key psychosocial resources in the traditional stress and coping framework (Lazarus and Folkman 1984; Pearlin et al. 1981)—mastery, self-esteem, and active coping—and, the interactive effects of these resources and major discriminatory experiences among the sample of Black adults. Two main outcomes were hypothesized for this study: 1) vicarious major discriminatory experiences will be inversely associated levels of life satisfaction, and positively associated with symptoms of depression and anxiety; and 2) psychosocial resources (i.e., mastery, self-esteem, and John Henryism active coping) will all moderate the relationship between major discrimination and mental health and well-being such that these resources will not offer protection against major discrimination based on findings from prior research (Broman, Mavaddat, and Hsu 2000).

Partial support was offered for the first hypothesis after findings multivariate linear regression analysis revealed that vicarious major discriminatory experiences were associated with lower levels of life satisfaction and higher levels of anxiety symptoms. Secondhand discrimination was not significantly associated with depressive symptoms,

however, which partly contradicted the first hypothesis. These findings may suggest that while vicarious discriminatory experiences are potentially stressful, they may impact individuals in the same aspects that are captured specifically with depressive symptoms.

Next, a series of multivariate linear regressions were conducted to assess the moderating effects of the psychosocial resources—mastery, self-esteem, and John Henryism active coping—on the relationship between major discriminatory experiences and life satisfaction, depressive symptoms, and anxiety symptoms. Findings from these analyses provided mixed support for the second hypothesis. Mastery buffered the effects of personal major discriminatory experiences on the respondents' depressive symptoms, but its moderating effects were not significant for any other outcomes in the analyses. This finding suggests that while mastery is an attribute that can offer a sense of control to individuals, it may not offer the same protection when the respondent is not the direct target of the discriminatory experience. Results also revealed that while self-esteem appeared to buffer the effects of personal major discriminatory experiences on depressive symptoms, respondents who had higher levels of self-esteem and reported more vicarious major discriminatory experiences had lower levels of life satisfaction. This finding implies that individuals who have higher levels of self-esteem may be more vulnerable to the negative effects of secondhand discrimination. Finally, respondents who had higher levels of John Henryism and more exposure to vicarious major discriminatory experiences also had greater levels of depressive symptoms, and greater levels of anxiety symptoms ($p<0.055$). Together, these findings underscore the importance of including indirect exposure to stressors in studies that investigate discrimination from a stress and coping perspective. Factors that are traditionally considered to be protective may actually

leave individuals more vulnerable to stressors that impact those around them. If this is the case, then healthcare providers should consider the negative impact of secondhand discrimination, as well as individuals' personal psychosocial resources and coping strategies, when providing support for Black Americans.

Limitations and Future Directions

While this work extends the body of knowledge on the relationship between discrimination and health, no study is without limitations. Findings from this dissertation are not easily generalizable for the broad United States population of Black Americans because its data are derived from a community epidemiologic study based out of Nashville, Tennessee. Future studies should investigate these social problems among a sample that is nationally representative. Despite this limitation, however, the main findings of this study were generally congruent with findings from studies that use data from nationally representative samples (Bor et al. 2018; Hudson et al. 2016; Kessler, Mickelson, and Williams 1999; Neighbors, Njai, and Jackson 2007). Additionally, the age distribution of the sample—adults aged 22 to 69 years old—restricts the utility of this sample for examining these research questions among children and older adult populations. Thus, future studies should consider investigating how these processes may differ for individuals who are under the age of 22, and ages 70 and older. Statements related to determining the nature of causal relationships between predictors and outcomes may also be fairly limited because a cross-sectional study design was employed for the Nashville Stress and Health Study. However, prior work has firmly established that while discriminatory experiences predict negative health outcomes, reports of discrimination

are not predicted by prior reports of the status of individuals' health (Brown et al. 2000; Williams and Mohammed 2009).

Data that include measures of self-reported discrimination also present unique challenges for research. Specifically, retrospective self-reporting events lends itself the chance of unreliability of recall and recall bias (Dohrenwend 2006). Furthermore, a dose-responsive relationship exists between the level of exposure and outcomes, in which case recall bias may lead to an overestimation of the impact of a stressor (Williams and Mohammed 2009), or the underreporting of stressful life events (Glasner and Vaart 2009). In an attempt to address this concern, researchers are beginning to assess the impact of stressors by focusing on specific biomarkers that indicate how the body has been impacted by stress (Chae et al. 2020; Geronimus et al. 2006; McFarland et al. 2018).

It should also be noted that while several domains of discrimination were captured through the provided measures, the temporal aspect of major discrimination was neglected, making it difficult to assess how the respondents' life stage during the reported experience played a factor in how they were affected by it. Life course framework postulates that life stages are different and there may be sensitive periods in which individuals may be more vulnerable to the consequences of certain phenomena as a result of their stage of development (Elder 1994; Pearlin 2010). Finally, based on the design of the survey questionnaire, there was no way to assess the vicarious effects of everyday discrimination experiences. Research has suggested that chronic stressors (Cohen et al. 1995), and daily discriminatory experiences (Kessler, Mickelson, and Williams 1999; Wheaton et al. 2018; Williams et al. 1997), are more robust predictors of health outcomes. Future studies should incorporate survey questionnaires with life course-

adapted survey instruments that capture not only the indirect exposures to discrimination, but also the life stage that the respondent was exposed to the discriminatory experiences.

Research on discrimination and health has grown considerably over the past few decades. However, there is still much room for growth and understanding for the public good. Evidence from this dissertation not only supports the general trends in the literature on how discrimination negatively impacts health, but it also extends the body of knowledge with its meaningful contributions. Findings from this dissertation will inform individuals, as well as entities, who work to target and intervene in efforts to reduce health disparities that stem from discrimination. This work is a call to action for researchers who are open to broadening their scope of investigation to capture the indirect health effects of perceived discrimination and other psychosocial stressors in addition to the direct effects. Further work in this area at the levels of research, policy, and intervention will improve the lives of Americans, reduce disparities in health along racial lines, and promote equity.

REFERENCES

Almeida, David M., and Ronald C. Kessler. 1998. “Everyday Stressors and Gender Differences in Daily Distress.” *Journal of Personality and Social Psychology*, 75(3): 670-680.

Banks, Ralph R. 2011. *Is Marriage for White People?: How the African American Marriage Decline Affects Everyone*. Dutton/Penguin Books.

Bor, Jacob, Atheendar S. Venkataramani, David R. Williams, and Alexander C. Tsai. 2018. “Police Killings and Their Spillover Effects on the Mental Health of Black Americans: A Population-Based, Quasi-Experimental Study.” *Lancet*, 392: 302-310.

Borrell, Luisa N., Catarina I. Kiefe, David R. Williams, Ana V. Diez-Roux, and Penny Gordon-Larsen. 2006. “Self-Reported Health, Perceived Racial Discrimination, and Skin Color in African Americans in the CARDIA Study.” *Social Science and Medicine*, 63: 1415-1427.

Broman, Clifford L., Roya Mavaddat, and Shu-yao Hsu. 2000. “The Experience and Consequences of Perceived Racial Discrimination: A Study of African Americans.” *Journal of Black Psychology*, 26(2): 165-180.

Brown, Tony N., David R. Williams, James S. Jackson, Harold W. Neighbors, Myriam Torres, Sherrill L. Sellers, and Kendrick T. Brown. 2000. “‘Being Black and Feeling Blue’: The Mental Health Consequences of Racial Discrimination.” *Race and Society*, 2(2): 117-131.

Carter, Robert T. 2007. “Racism and Psychological and Emotional Injury: Recognizing and Assessing Race-Based traumatic Stress.” *The Counseling Psychologist*, 35(13): 13-105.

Chae, David H., Yijie Wang, Connor D. Martz, Natalie Slopen, Tiffany Yip, Nancy E. Adler, Thomas E. Fuller-Rowell, Jue Lin, Karen A. Matthews, Gene H. Brody, Erica C. Spears, Eli Puterman, and Elissa S. Epel. 2020. “Racial Discrimination and Telomere Shortening among African Americans: The Coronary Artery Risk Development in Young Adults (CARDIA) Study.” *Health Psychology*, 39(3): 209-219.

Cohen, Sheldon, Ronald C. Kessler, and L. U. Gordon. 1995. “Strategies for Measuring Stress in Studies of Psychiatric and Physical Disorders.” Pp. 3-26 in *Measuring Stress: A Guide for Health and Social Scientists*, edited by Sheldon Cohen, Ronald C. Kessler, and U. G. Lynn. New York: Oxford University Press.

Dohrenwend, Bruce P. 2006. “Inventorying Stressful Life Events as Risk Factors for Psychopathology: Toward Resolution of the Problem of Intracategory Variability.” *Psychological Bulletin,* 132(3): 477-495.

Elder, Glen H. 1994. “Time, Human Agency, and Social Change: Perspectives on the Life Course.” *Social Psychology Quarterly*, 57(1): 4-15.

England, Paula, and Nancy Folbre. 1999. “The Cost of Caring.” *The Annals of the American Academy of Political and Social Science*, 561: 39-51.

Fischer, Ann R., and Christina M. Shaw. 1999. African Americans’ Mental Health and Perceptions of Racist Discrimination: The Moderating Effects of Racial Socialization Experiences and Self-Esteem.” *Journal of Counseling Psychology*, 46(3): 395-407.

Geronimus, Arline T., Margaret Hicken, Danya Keene, and John Bound. 2006. “‘Weathering’ and Age Patterns of Allostatic Load Scores among Blacks and Whites in the United States.” *American Journal of Public Health*, 96(5): 826-833.

Glasner, Tina, and Wander van der Varrt. 2009. “Applications of Calendar Instruments in Social Surveys: A Review.” *Quality and Quantity*, 43: 333-349.

Keith, Verna M. 1993. “Gender, Financial Strain, and Psychological Distress among Older Adults.” *Research on Aging*, 15(2): 123-147.

Hudson, Darrell L., Harold W. Neighbors, Arline T. Geronimus, and James S. Jackson. 2016. “Racial Discrimination, John Henryism, and Depression among African Americans.” *Journal of Black Psychology*, 42(3): 221-243.

Kessler, Ronald C., and Jane D. McLeod. 1984. “Sex Differences in Vulnerability.” *American Sociological Review*, 49(5): 620-631.

Kessler, Ronald C., Kristin D. Mickelson, and David R. Williams. 1999. “The Prevalence, Distribution, and Mental Health Correlates of Perceived Discrimination in the United States.” *Journal of Health and Social Behavior*, 40(3): 208-230.

Lazarus, Richard S., and Susan Folkman. 1984. *Stress, Appraisal, and Coping*. Springer Publishing Company.

McCord, Joan, and Margaret E. Ensminger. 1997. “Multiple Risks and Comorbidity in an African-American Population.” *Criminal Behavior and Mental Health*, 7: 339-352.

McFarland, Michael J., John Taylor, Cheryl A. S. McFarland, and Katherine L. Friedman. 2018. “Perceived Unfair Treatment by Police, Race, and Telomere

Length: A Nashville Community-based Sample of Black and White Men." *Journal of Health and Social Behavior*, 59(4): 585-600.

Neighbors, Harold W., Rashid Njai, and James S. Jackson. 2007. "Race, Ethnicity, John Henryism, and Depressive Symptoms: The National Survey of American Life Adult Reinterview." *Research in Human Development*, 4(1-2): 71-87.

Pager, Devah and Hana Shepherd. 2008. "The Sociology of Discrimination: Racial Discrimination in Employment, Housing, Credit, and Consumer Markets." *Annual Review of Sociology*, 34: 181-209.

Paradies, Yin, Jehonathan Ben, Nida Denson, Amanuel Elias, Naomi Priest, Alex Pieterse, Arpana Gupta, Margaret Kelaher, and Gilbert Gee. 2015. "Racism as a Determinant of Health: A Systematic Review and Meta-Analysis." *PLoS ONE*, 10(9): 1-48.

Pearlin, Leonard I. 1981. "The Stress Process." *Journal of Health and Social Behavior*, 22(4): 337-356.

Pearlin, Leonard I., Scott Schieman, Elena M. Fazio, and Stephen C. Meersman. 2005. "Stress, Health, and the Life Course: Some Conceptual Perspectives." *Journal of Health and Social Behavior*, 46(2): 205-219.

Pearlin, Leonard I. 2010. "The Life Course and the Stress Process: Some Conceptual Comparisons." *Journal of Gerontology: Social Sciences*, 65B(2): 207-215.

Smith, Rhiannon L., and Amanda J. Rose. 2011. "The 'Cost of Caring' in Youths' Friendships: Considering Associations Among Social Perspective-Taking, Co-Rumination, and Empathetic Distress." *Developmental Psychology*, 47(6): 1792-1803.

Utsey, Shawn O., Yasser A. Payne, Ebonique S. Jackson, and Antoine M. Jones. 2002. "Race-Related Stress, Quality of Life Indicators, and Life Satisfaction among Elderly African Americans." *Cultural Diversity and Ethnic Minority Psychology*, 8(3): 224-233.

Wheaton, Felicia V., Courtney S. Thomas, Carly Roman, and Cleopatra M. Abdou. 2018. "Discrimination and Depressive Symptoms among African American Men Across the Adult Lifecourse." *Journals of Gerontology: Psychological Sciences*, 73(2): 208-218.

Williams, David R., Yan Yu, James S. Jackson, and Norman B. Anderson. 1997. "Racial Differences in Physical and Mental Health: Socio-Economic Status, Stress and Discrimination." *Journal of Health Psychology*. 2(3): 335-351.

Williams, David R., and Selina A. Mohammed. 2009. “Discrimination and Racial Disparities in Health: Evidence and Needed Research.” *Journal Behavioral Medicine*, 32(1): 20-47.

Williams, David R., Naomi Priest, and Norman Anderson. 2016. “Understanding Associations between Race, Socioeconomic Status and Health: Patterns and Prospects.” *Health Psychology*, 35(4): 407-411.

REFERENCES

Almeida, David M., and Ronald C. Kessler. 1998. "Everyday Stressors and Gender Differences in Daily Distress." *Journal of Personality and Social Psychology*, 75(3): 670-680.

Anderson, Riana E., Saida B. Hussain, Melvin N Wilson, Daniel S. Shaw, Thomas J Dishion, and Joanna L. Williams. 2015. "Pathways to Pain: Racial Discrimination and Relations Between Parental Functioning and Child Psychosocial Well-Being." *Journal of Black Psychology*, 41(6): 491-512.

Armstead, Cheryl A., Kathleen A. Lawler, Gloria Gorden, John Cross, and Judith Gibbons. 1989. "Relationship of Racial Stressors to Blood Pressure Responses and Anger Expression in Black College Students." *Health Psychology*, 8(5): 541-556.

Aspinwall, Lisa G., and Shelley E. Taylor. 1992. "Modeling Cognitive Adaptation: A Longitudinal Investigation of the Impact of Individual Differences and Coping on College Adjustment and Performance." *Journal of Personality and Social Psychology*, 63(6): 989-1003.

Avison, William R., and John Cairney. 2003. "Social Structure, Stress, and Personal Control." In S. H. Zarit, L. I. Pearlin, and K. W. Schaie (Eds.), *Societal Impact on Aging. Personal Control in Social and Life Course Contexts* (p. 127-164). Springer Publishing Co.

Banks, Kira H., Laura P. Kohn-Wood, and Michael Spencer. 2006. "An Examination of the African American Experience of Everyday Discrimination and Symptoms of Psychological Distress." *Community Mental Health Journal*, 42(6): 555-570.

Banks, Ralph R. 2011. *Is Marriage for White People?: How the African American Marriage Decline Affects Everyone*. Dutton/Penguin Books.

Barefoot, John C., Grant W. Dahlstrom, and Redford B. Williams. 1983. "Hostility, CHD Incidence, and Total Mortality: A 25-Year Follow-Up Study of 255 Physicians." *Psychosomatic Medicine*, 45(1): 59-63.

Barefoot, John C., Bercedis L. Peterson, W. Grant Dahlstrom, Ilene C. Siegler, Norman B. Anderson, Redford B. Williams Jr. 1991. "Hostility Patterns and Health Implications: Correlates of Cook-Medley Hostility Scale Scores in a National Survey." *Health Psychology*, 10(1): 18-24.

Bennett, Gary G., Marcellus M. Merritt, John J. Sollers III, Christopher L. Edwards, Keith E. Whitfield, Dwayne T. Brandon, and Reginald D. Tucker. 2004. "Stress, Coping, and Health Outcomes among African-Americans: A Review of the John Henryism Hypothesis." *Psychology and Health*, 19(3): 369-383.

Benin, Mary, and Verna Keith. 1995. "The Social Support of Employed African American and Anglo Mothers." *Journal of Family Issues*, 16(3): 275-2897.

Bonilla-Silva, Eduardo. 1997. "Rethinking Racism: Toward a Structural Interpretation." *American Sociological Review*, 62(3): 465-480.

Bor, Jacob, Atheendar S. Venkataramani, David R. Williams, and Alexander C. Tsai. 2018. "Police Killings and Their Spillover Effects on the Mental Health of Black Americans: A Population-Based, Quasi-Experimental Study." *Lancet*, 392: 302-310.

Borrell, Luisa N., Catarina I. Kiefe, David R. Williams, Ana V. Diez-Roux, and Penny Gordon-Larsen. 2006. "Self-Reported Health, Perceived Racial Discrimination, and Skin Color in African Americans in the CARDIA Study." *Social Science and Medicine*, 63: 1415-1427.

Boulter, Alexis C., Jacklyn Quinlan, Aida T. Miro-Herrans, Laurel N. Pearson, Nubiana L. Todd, HEAT Steering Committee, Clarence C. Gravlee, and Connie J. Mulligan. 2015. "Interaction of *Alu* Polymorphisms and Novel Measures of Discrimination in Association with Blood Pressure in African Americans Living in Tallahassee, Florida." *Human Biology*, 84(4): 295-305.

Braveman, Paula A., Catherine Cubbin, Susan Egerter, David R. Williams, and Elsie Pamuk. 2010. "Socioeconomic Disparities in Health in the United States: What the Patterns Tell Us." *American Journal of Public Health*, 100: S186-S196.

Braveman, Paula. 2014. "What is Health Equity: And How Does a Life-Course Approach Take Us Further Toward It?" *Maternal and Child Health Journal*, 18(2): 366-372.

Breslau, Joshua, Kenneth S. Kendler, Maxwell Su, and Sergio Gaciola-Aguilar. 2005. "Lifetime Risk and Persistence of Psychiatric Disorders Across Ethnic Groups in the United States." *Psychological Medicine*, 35(3): 317-327.

Broman, Clifford L., Roya Mavaddat, and Shu-yao Hsu. 2000. "The Experience and Consequences of Perceived Racial Discrimination: A Study of African Americans." *Journal of Black Psychology*, 26(2): 165-180.

Brondolo, Elizabeth, Nisha Brady ver Halen, Melissa Pencille, Danielle Beatty, and Richard J. Contrada. 2009. "Coping with Racism: A Selective Review of the Literature and Theoretical and Methodological Critique." *Journal of Behavioral Medicine*, 32: 64-88.

Brondolo, Elizabeth, Erica E. Love, Melissa Pencille, Antoinette Schoenthaler, and Gbenga Ogedegbe. 2011. "Racism and Hypertension: A Review of the Empirical Evidence and Implications for Clinical Practice." *American Journal of Hypertension*, 24(5): 518-529.

Brosschot, Jos F., Suzanne Pieper, and Julian F. Thayer. 2005. “Expanding Stress Theory: Prolonged Activation and Perseverative Cognition.” *Psychoneuroendocrinology*, 30(1): 1043-1049.

Brosschot, Jos F., and William Gerin, and Julian F. Thayer. 2006. “The Perseverative Cognition Hypothesis: A Review of Worry, Prolonged Stress-Related Physiological Activation, and Health.” *Journal of Psychosomatic Research*, 60(2): 113-124.

Brown, Danice L. 2008. “African American Resiliency: Examining Racial Socialization and Social Support as Protective Factors.” *Journal of Black Psychology*, 34(1): 32-48.

Brown, Robyn L., Judith A. Richman, Myles D. Moody, and Kathleen M. Rospenda. 2019a. “Alcohol-Related Effects of POST-9/11 Discrimination in the Context of the Great Recession: Race/Ethnic Variation.” *Addictive Behaviors*, 93: 154-157.

Brown, Robyn L., Judith A. Richman, Myles D. Moody, and Kathleen M. Rospenda. 2019b. “The Enduring Mental Health Effects of Post-9/11 Discrimination in the Context of the Great Recession: Race/Ethnic Variation.” *Society and Mental Health*, 20(10): 1-13.

Brown, Tony N. 2003. "Critical Race Theory Speaks to the Sociology of Mental Health: Mental Health Problems Produced by Racial Stratification." *Journal of Health and Social Behavior* 292-301.

Brown, Tony N., David R. Williams, James S. Jackson, Harold W. Neighbors, Myriam Torres, Sherrill L. Sellers, and Kendrick T. Brown. 2000. “‘Being Black and Feeling Blue’: The Mental Health Consequences of Racial Discrimination.” *Race and Society*, 2(2): 117-131.

Bullock, Samuel C., and Earline Houston. 1987. “Perceptions of Racism by Black Medical Students Attending White Medical School.” *Journal of the National Medical Association*, 79(6): 601-608.

Carliner, Hannahm, Erin Delker, David S. Fink, Katherine M. Keyes, and Deborah S. Hasin. 2016. “Racial Discrimination, Socioeconomic Position, and Illicit Drug Use.” *Social Psychiatry and Psychiatric Epidemiology*, 51(4): 551-560.

Carter, Robert T. 2007. “Racism and Psychological and Emotional Injury: Recognizing and Assessing Race-Based traumatic Stress.” *The Counseling Psychologist*, 35(13): 13-105.

Cassel, John. 1976. “The Contribution of the Social Environment to Host Resistance: The Fourth Wade Hampton Frost Lecture.” *American Journal of Epidemiology*, 104(2): 107-123.

Chae, David H., Sean Clouston, Connor D. Martz, Mark L. Hatzenbuehler, Hannah L.F. Cooper, Rodman Turpin, Seth Stephens-Davidowitz, and Michael R. Kramer. 2018. “Area Racism and Birth Outcomes among Blacks in the United States.” *Social Science and Medicine*, 199: 49-55.

Chae, David H., Yijie Wang, Connor D. Martz, Natalie Slopen, Tiffany Yip, Nancy E. Adler, Thomas E. Fuller-Rowell, Jue Lin, Karen A. Matthews, Gene H. Brody, Erica C. Spears, Eli Puterman, and Elissa S. Epel. 2020. “Racial Discrimination and Telomere Shortening among African Americans: The Coronary Artery Risk Development in Young Adults (CARDIA) Study.” *Health Psychology*, 39(3): 209-219.

Chida, Yoichi, and Andrew Steptoe. 2008. “Positive Psychological Well-Being and Mortality: A Quantitative Review of Prospective Observational Studies.” *Psychosomatic Medicine*, 70(7): 741-756.

Clark, Rodney, Norman B. Anderson, Vernessa R. Clark, and David R. Williams. 1999. “Racism as a Stressor for African Americans: A Biopsychosocial Model.” *American Psychologist*, 54(10): 805-816.

Clark, Rodney, Ramona A. Benkert, and John M. Flack. 2006. “Large Arterial Elasticity Varies as a Function of Gender and Racism-Related Vigilance in Black Youth.” *Journal of Adolescent Health*, 39: 562-569.

Cobb, Sidney. 1976. “Social Support as a Moderator of Life Stress.” *Psychosomatic Medicine*, 38(5): 300-314.

Cohen, Sheldon, Ronald C. Kessler, and L. U. Gordon. 1995. “Strategies for Measuring Stress in Studies of Psychiatric and Physical Disorders.” Pp. 3-26 in *Measuring Stress: A Guide for Health and Social Scientists*, edited by Sheldon Cohen, Ronald C. Kessler, and U. G. Lynn. New York: Oxford University Press.

Cole, Elizabeth R. and Safiya R. Omari. 2003. “Race, Class and the Dilemmas of Upward Mobility for African Americans”. *Journal of Social Issues*, 59(4):785-802.

Colen, Cynthia G., Qi Li, Corrine Reczek, and David R. Williams. 2019. “The Intergenerational Transmission of Discrimination: Children’s Experiences of Unfair Treatment and Their Mothers’ Health at Midlife.” *Journal of Health and Social Behavior*, 60(4): 474-492.

Coll, Cynthia Garcia, Gontran Lamberty, Renee Jenkins, Harriet Pipes McAdoo, Keith Crnic, Barbara Hanna Wasik, and Heidie Vazquez Garcia. 1996. “An Integrative

Model for the Study of Development Competencies in Minority Children." *Child Development*, 67(5): 1891-1914.

Collins, James W., Richard J. David, Arden Handler, Stephen Wall, and Steven Andes. 2004. "Very Low Birthweight in African American Infants: The Role of Maternal Exposure to Interpersonal Racial Discrimination." *American Journal of Public Health*, 94: 2132-2138.

Constantine, Madonna G., Leo Wilton, and Leon D. Caldwell. 2011. "The Role of Social Support in Moderating the Relationship Between Psychological Stress and Willingness to Seek Psychological Help among Black and Latino College Students." *Journal of Counseling*, 6(2): 155-165.

Dannefer, Dale. 1987. "Aging as Intracohort Differentiation: Accentuation, the Matthew Effect, and the Life Course." *Sociological Forum*, 2(2): 211-236.

Derogatis, Leonard R., Ronald S. Lipman, and Lino Covi. 1973. "The SCL-90: An Outpatient Psychiatric Rating Scale." *Psychopharmacology Bulletin*, 9:13-28.

Derogatis, Leonard R., Karl Rickels, and Anthony F. Rock. 1976. "The SCL-90 and the MMPI: A Step in the Validation of a New Self-Report Scale." *British Journal of Psychiatry*, 128: 280-289.

Derogratis, Leonard R., and Patricia A. Clearly. 1977. "Confirmation of the Dimensional Structure of the SCL-90: A Study in Construct Validation." *Journal of Clinical Psychology*, 33(4): 981-989.

Diener, Ed, and Micaela Y. Chan. 2011. "Happy People Live Longer: subjective Well-Being Contributes to Health and Longevity." *Applied Psychology: Health and Well-Being*, 3(1): 1-43.

DiPrete, Thomas A., and Gregory M. Eirich. 2006. "Cumulative Advantage as a Mechanism for Inequality: A Review of Theoretical and Empirical Developments." *Annual Review of Sociology*, 32: 271-297.

Dole, N., and D. A. Savitz, I. Hertz-Picciotto, A. M. Siega-Riz, M. J. McMahon, and P. Buekens. 2003. "Maternal Stress and Preterm Birth." *American Journal of Epidemiology*, 157(1): 14-24.

Dohrenwend, Bruce P. 2006. "Inventorying Stressful Life Events as Risk Factors for Psychopathology: Toward Resolution of the Problem of Intracategory Variability." *Psychological Bulletin*, 132(3): 477-495.

Earnshaw, Valerie A., Lisa Rosenthal, Jessica B. Lewis, Emily C. Stasko, Johnathan N. Tobin, Tene T. Lewis, Allecia E. Reid, and Jeannette R. Ickovics. 2013. "Maternal Experiences with Everyday Discrimination and Infant Birth Weight: A

Test of Mediators and Moderators among Young, Urban Women of Color." *Annals of Behavioral Medicine*, 45(1): 13-23.

Elder, Glen H. 1994. "Time, Human Agency, and Social Change: Perspectives on the Life Course." *Social Psychology Quartely*, 57(1): 4-15.

Eliason, Scott R., Jeylan T. Mortimer, and Mike Vuolo. 2015. "The Transition to Adulthood: Life Course Structures and Subjective Perceptions." *Social Psychology Quarterly*, 78(3): 205-227.

England, Paula, and Nancy Folbre. 1999. "The Cost of Caring." *The Annals of the American Academy of Political and Social Science*, 561: 39-51.

Erving, Christy L. 2011. "Gender and Physical Health: A Study of African American and Caribbean Black Adults." *Journal of Health and Social Behavior*, 52(3): 383-399.

Erving, Christy L., Courtney S. Thomas, and Cleothia Frazier. 2018. "Is the Black-White Mental Health Paradox Consistent Across Gender and Psychiatric Disorders?" *American Journal of Epidemiology*, 188(2): 314-322.

Essed, Philomena. 1991. *Understanding Everyday Racism*, Newbury Park, CA: Sage.

Fagundes, Christopher P., Ronald Glaser, and Janice K. Kiecolt-Glaser. 2013. "Stressful Early Life Experiences and immune Dysregulation across the Lifespan." *Brain, Behavior, and Immunity*, 27C: 8-12.

Farmer, M. M., & Ferraro, K. F. 2005. "Are Racial Disparities in Health Conditional on Socioeconomic Status?" *Social Science & Medicine*, 60(1): 191-204.

Farmer, Heather R., Linda A. Wray, and Jason R. Thomas. 2019. "Do Race and Everyday Discrimination Predict Mortality Risk? Evidence from the Health and Retirement Study." *Gerontology and Geriatric Medicine*, 5: 1-9.

Feagin, Joe R. 1991. "The Continuing Significance of Race: Antiblack Discrimination in Public Places." *American Sociological Review*, 56(1): 101-116.

Feagin, Joe R. 1992. "The Continuing Significance of Racism: Discrimination Against Black Students in White Colleges." *Journal of Black Studies*, 22(4): 546-578.

Feagin, Joe R., and Melvin P. Sikes. 1994. *Living with Racism: The Black Middle-Class Experience*. Beacon Press.

Fischer, Ann R., and Christina M. Shaw. 1999. African Americans' Mental Health and Perceptions of Racist Discrimination: The Moderating Effects of Racial Socialization Experiences and Self-Esteem." *Journal of Counseling Psychology*, 46(3): 395-407.

Gee, Gilbert C., and Chandra L. Ford. 2011. “Structural Racism and Health Inequities: Old Issues, New Directions.” *Du Bois Review,* 8(1): 115-132.

Gee, Gilbert C., Katrina M. Walsemann, and Elizabeth Brondolo. 2012. “A Life Course Perspective on How Racism May Be Related to Health Inequities.” *American Journal of Public Health*, 102: 967-974.

Geronimus, Arline T. 1996. “Black/White Differences in the Relationship of Maternal Age to Birthweight: A Population-Based Test of the Weathering Hypothesis.” *Social Science and Medicine*, 42(4): 589-597.

Geronimus, Arline T., Margaret Hicken, Danya Keene, and John Bound. 2006. “‘Weathering’ and Age Patterns of Allostatic Load Scores among Blacks and Whites in the United States.” *American Journal of Public Health*, 96(5): 826-833.

Glasner, Tina, and Wander van der Varrt. 2009. “Applications of Calendar Instruments in Social Surveys: A Review.” *Quality and Quantity*, 43: 333-349.

Goldsmith, Arthur, H., Darrick Hamilton, and William Darity Jr. 2006. “Shades of Discrimination: Skin Tone and Wages.” *The American Economic Review,* 96(2): 242-245.

Goosby, Bridget J., and Chelsea Heidbrink. 2013. “Transgenerational Consequences of Racial Discrimination for African American Health.” *Sociology Compass*, 7(8): 630-643.

Goosby, Bridget J., Sarah Malone, Elizabeth Richardson, Jacob E. Cheale, and Deadric Williams. 2015. “Perceived Discrimination and Markers of Cardiovascular Risk among Low-Income African American Youth.” *American Journal of Human Biology*, 27(4): 546-552.

Goosby, Bridget J., Elizabeth Straley, and Jacob E. Cheadle. 2017. “Discrimination, Sleep, and Stress Reactivity: Pathways to African American-White Cardiometabolic Risk Inequities.” *Population Research and Policy Review*, 36(5): 699-716.

Goosby, Bridget J., Jacob E. Cheadle, and Colter Mitchell. 2018. “Stress-Related Biosocial Mechanisms of Discrimination and African American Health Inequities.” *Annual Review of Sociology,* 44: 319-340.

Grollman, Eric Anthony. 2012. “Multiple Forms of Perceived Discrimination and Health among Adolescents and Young Adults.” *Journal of Health and Social Behavior*, 53(2): 199-214.

Gurin, Patricia, Gerald Gurin, and Betty M. Morrison. 1978. “Personal and Ideological Aspects of Internal and External Control.” *Social Psychology*, 41(4): 275-296.

Harrell, Shelly P. 2000. “A Multidimensional Conceptualization of Racism-Related Stress: Implications for the Well-Being of People of Color.” *American Journal of Orthopsychiatry*, 70(1): 42-57.

Harris, Kathleen Mullan. 2010. “An Integrative Approach to Health.” *Demography*, 47(1): 1-22.

Heard-Garris, Nia, M. Cale, L. Camaj, M. C. Hamati, T. P. Dominguez. 2018. “Transmitting Trauma: A Systematic Review of Vicarious Racism and Child Health.” *Social Science and Medicine*, 199: 230-240.

Hersch, Joni. 2011. “Skin Color, Physical Appearance, and Perceived Discriminatory Treatment.” *The Journal of Socio-Economics*, 40, 671-678.

Hicken, Margaret T., Hedwig Lee, Jennifer Ailshire, Sarah A. Burgard, and David R. Williams. 2013. “‘Every Shut Eye, Ain’t Sleep’: The Role of Racism-Related Vigilance in Racial/Ethnic Disparities in Sleep Difficulty.” *Race and Social Problems*, 5(2): 100-112.

Hicken, Margaret T., Hedwig Lee, and Anna K. King. 2018. “The Weight of Racism: Vigilance and Racial Inequalities in Weight-Related Measures.” *Social Science and Medicine*, 199: 157-166.

Hudson, Darrell L., Kai M. Bullard, Harold W. Neighbors, Arline T. Geronimus, Juan Yang, James S. Jackson. 2012. “Are Benefits Conferred with Greater Socioeconomic Position Undermined by Racial Discrimination among African American Men?” *Journal of* Men’s *Health*, 9(2): 127-136.

Hudson, Darrell L., Eli Patterson, Kirsten Bibbins-Domingo, Karen A. Matthews, and Nancy Adler. 2013. “Race, Life Course Socioeconomic Position, Racial Discrimination, Depressive Symptoms and Self-Rated Health.” *Social Science and Medicine*, 97: 7-14.

Hudson, Darrell L., Harold W. Neighbors, Arline T. Geronimus, and James S. Jackson. 2016. “Racial Discrimination, John Henryism, and Depression among African Americans.” *Journal of Black Psychology*, 42(3): 221-243.

Hughes, Michael, and David H. Demo. 1989. “Self-Perceptions of Black Americans Self-Esteem and Personal Efficacy.” *American Journal of Sociology*, 95(1): 132-159.

Hughes, Michael, K. Jill Kiecolt, Verna M. Keith, and David H. Demo. 2015. “Racial Identity and Well-Being among African Americans.” *Social Psychology Quarterly*, 78(1): 25-48.

Jacobsen, Leslie K., Steven M. Southwick, and Thomas R. Kosten. 2001. "Substance Use Disorders in Patients with Posttraumatic Stress Disorder: A Review of Literature." *American Journal of Psychiatry*, 158: 1184-1190.

Jackson, James S., Myriam Torres, Cleopatra H. Caldwell, Harold W. Neighbors, Randolph M. Nesse, Robert Joseph Taylor, Steve J. Trierweiler, and David R. Williams. 2004. "The National Survey of American Life: A Study of Racial, Ethnic and Cultural Influences on Mental Disorders and Mental Health." *International Journal of Methods in Psychiatry Research*, 13(4): 196-207

Jackson, Pamela B., and David R. Williams. 2006. "The Intersection of Race, Gender, and SES: Health Paradoxes." In *Gender, Race, Class, and Health: Intersectional; Approaches,* p. 131-162. Jossey-Bass.

James, Sherman A., Sue A. Hartnett, and William D. Kalsbeek. 1983. "John Henryism and Blood Pressure Differences among Black Men." *Journal of Behavioral Medicine*, 6(3): 1983.

James, Sherman. 1994. "John Henryism and the Health of African-Americans." *Culture, Medicine, and Psychiatry*, 18: 163-182.

Kahneman, Daniel, Ed Diener, and Norbert Schwarz. 2003. *Well-Being: The Foundations of Hedonic Psychology*. Russell Sage Foundation; New York: 2003.

Keith, Verna M., and Cedric Herring. 1991. "Skin Tone and Stratification in the Black Community." *American Journal of Sociology*, 97(3): 760-778.

Kessler, Ronald C., and Jane D. McLeod. 1984. "Sex Differences in Vulnerability." *American Sociological Review*, 49(5): 620-631.

Kessler, Ronald C., Kristin D. Mickelson, and David R. Williams. 1999. "The Prevalence, Distribution, and Mental Health Correlates of Perceived Discrimination in the United States." *Journal of Health and Social Behavior*, 40(3): 208-230.

Kiecolt, Jill K., Micheal Hughes, and Verna M. Keith. 2009. "Can a High Sense of Control and John Henryism Be Bad for Mental Health?" *The Sociological Quarterly*, 50(4): 693-714.

Kung, Hsiang-Ching, Donna L. Hoyert, Jiaquan Xu, and Sherry L. Murphy. 2008. "Deaths: Final Data for 2005. *National Vital Statistics Reports,* 56(10): 1-20.

Landrine, Hope, and Elizabeth A. Klonoff. 1996. "The Schedule of Racist Events: A Measure of Racial Discrimination and a Study of its Negative Physical and Mental Health Consequences." *Journal of Black Psychology*, 22(2): 144-168.

Lantz, Paula M., James S. House, Richard P. Mero, and David R. Williams. 2005. "Stress, Life Events, and Socioeconomic Disparities in Health: results from the Americans' Changing Lives Study". *Journal of Health and Social Behavior*, 46: 272-88.

Lazarus, Richard S., and Susan Folkman. 1984. *Stress, Appraisal, and Coping*. Springer Publishing Company.

Leventhal, Howard and Paul D. Cleary. 1980. "The Smoking Problem: A Review of the Research and Theory in Behavioral Risk Modification." *Psychology Bulletin*, 88:370-405.

Lewis, Tene T., Courtney D. Cogburn, and David R. Williams. 2015. "Self-Reported Experiences of Discrimination and Health: Scientific Advances, Ongoing Controversies, and Emerging Issues." *Annual Review of Clinical Psychology*, 11: 407-440.

Louie, Patricia, and Blair Wheaton. 2018. "Prevalence and Patterning of Mental Disorders Through Adolescence in 3 Cohorts of Black and White Americans." *American Journal of Epidemiology*, 187(11): 2332-2338.

Lu, Michael C., and Neal Halfon. 2003. "Racial and Ethnic Disparities in Birth Outcomes: A Life-Course Perspective." *Maternal and Child Health Journal*, 7(1): 13-30.

Martz, Connor D., Amani M. Allen, Thomas E. Fuller-Rowell, Erica C. Spears, S. Sam Lim, Cristina Drenkard, Kara Chung, Evelyn A. Hunter, David H. Chae. 2019. *Journal of Racial and Ethnic Health Disparities*, 6(5): 1044-1051.

McCord, Joan, and Margaret E. Ensminger. 1997. "Multiple Risks and Comorbidity in an African-American Population." *Criminal Behavior and Mental Health*, 7: 339-352.

McEwen, Bruce S. 1998. "Stress, Adaptation, and Disease: Allostasis and Allostatic Load." *Annals of the New York Academy of Sciences*, 840(1): 33-44.

McFarland, Michael J., John Taylor, Cheryl A. S. McFarland, and Katherine L. Friedman. 2018. "Perceived Unfair Treatment by Police, Race, and Telomere Length: A Nashville Community-based Sample of Black and White Men." *Journal of Health and Social Behavior*, 59(4): 585-600.

McGonagle, Katherine A., and Ronald C. Kessler. 1990. "Chronic Stress, Acute Stress, and Depressive Symptoms." *American Journal of Community Psychology*, 18(5): 681-706.

Mertler, Craig A., and Rachel Vannatta. 2013. *Advanced and Multivariate Statistical Methods: Practical Application and Interpretation (Fifth Edition)*. Glendale, CA: Pyrczak Publishing.

Merton, Robert K. 1988. "The Matthew Effect in Science, II: Cumulative Advantage and the Symbolism of Intellectual Property." *ISIS*, 79: 609-623.

Meyer, Ilan H., Sharon Schwartz, and David M. Frost. 2008. "Social Patterning of Stress and Coping: Does Disadvantaged Social Status Confer More Stress and Fewer Coping Resources?" *Social Science and Medicine*, 67(3): 368-379.

Miller, Byon, Sunshine M. Role, and Verna M. Keith. 2013. "Coping with Racial Discrimination: Assessing the Vulnerability of African Americans and the Mediated Moderation of Psychosocial Resources." *Society and Mental Health*, 3(2): 133-150.

Miller, Todd Q., Timothy W. Smith, Charles Turner, Margarita L. Guijarro, and Amanda J. Hallet. 1996. "Meta-Analytic Review of Research on Hostility and Physical Health." *Psychological Bulletin*, 119(2): 322-48.

Moody, Myles D., Robyn L. Brown, and Gabriele Ciciurkaite. 2019. "For Better or Worse: An Assessment of the 'Linked Lives' Concept and the Race-Based Effects of Partner Stress on Self-Rated Health among Older Adults." *Journal of Racial and Ethnic Health Disparities*, 6(4): 861-867.

Mouzon, Dawne. 2013. "Can Family Relationships Explain the Race Paradox in Mental Health?" *Journal of Marriage and Family*, 75: 470-485.

Mouzon, Dawne M., Robert Joseph Taylor, Verna M. Keith, Emily J. Nicklett, and Linda M. Chatters. 2017. "Discrimination and Psychiatric Disorders among Older African Americans." *International Journal of Geriatric Psychiatry*, 32(2): 175-182.

Mulligan, Connie J. 2016. "Early Environments, Stress, and the Epigenetics of Human Health." *Annual Review of Anthropology*, 45: 233-49.

Mustillo, Sarah, Nancy Krieger, Erica P. Gunderson, Stephen Sidney, Heather McCreathm and Catarina I. Kiefe. 2004. "Self-Reported Experiences of Racial Discrimination and Black-White Differences in Preterm and Low-Birthweight Deliveries: The CARDIA Study." *American Journal of Public Health*, 94: 2125-2131.

Nam, Charles B., and Monica Boyd. 2004. "Occupational Status in 2000: Over a Century of Census-Based Measurement." *Population Research and Policy Review*, 23(4): 327-358.

Neblett, Enrique W., Mary Terzian, and Valencia Harriott. 2010. “From Racial Discrimination to Substance Use: The Buffering Effects of Racial Socialization.” *Child Development Perspectives,* 4(2): 131–137.

Neighbors, Harold W., Rashid Njai, and James S. Jackson. 2007. “Race, Ethnicity, John Henryism, and Depressive Symptoms: The National Survey of American Life Adult Reinterview.” *Research in Human Development*, 4(1-2): 71-87.

Nguyen, Ann W., Linda M. Chatters, Robert Joseph Taylor, and Dawn M. Mouzon. 2016.
Social Support from Family and Friends and Subjective Well-Being of Older African Americans.” *Journal of Happiness Studies*, 17(3): 959-979.

Orchard, Jacob, and Joseph Price. 2017. “County-Level Racial Prejudice and the Black-White Gap in Infant Health Outcomes.” *Social Science and Medicine*, 181: 191-198.

O’Rand, Angela M. 1996. “The Precious and the Precocious: Understanding Cumulative Disadvantage and Cumulative Advantage Over the Life Course.” *The Gerontologist*, 36(2): 230-238.

Pachter, Lee M., Cleopatra H. Caldwell, James S. Jackson, and Bruce A. Bernstein. 2018. “Discrimination and Mental Health in a Representative Sample of African-Americans and Afro-Caribbean Youth.” *Journal of Racial and Ethnic Health Disparities*, 5(4): 831-837.

Pascoe, Elizabeth A., and Laura Smart Richman. 2009. “Perceived Discrimination and Health: A Meta-Analytic Review.” *Psychological Bulletin*, 135(4): 531-554.

Pager, Devah and Hana Shepherd. 2008. “The Sociology of Discrimination: Racial Discrimination in Employment, Housing, Credit, and Consumer Markets.” *Annual Review of Sociology*, 34: 181-209.

Paradies, Yin. 2006. “A Systematic Review of Empirical Research on Self-reported Racism and Health. *International Journal of Epidemiology,* 35: 888-901.

Paradies, Yin, Jehonathan Ben, Nida Denson, Amanuel Elias, Naomi Priest, Alex Pieterse, Arpana Gupta, Margaret Kelaher, and Gilbert Gee. 2015. “Racism as a Determinant of Health: A Systematic Review and Meta-Analysis.” *PLoS ONE*, 10(9): 1-48.

Pascoe, Elizabeth A., and Laura Smart Richman. 2009. “Perceived Discrimination and Health: A Meta-Analytic Review.” *Psychological Bulletin*, 135(4): 531-554.

Pattillo-McCoy, M. 1999a. *Black Picket Fences: Privilege and Peril among the Black Middle Class*. Chicago: University of Chicago Press.

Pearlin, Leonard I., Scott Schieman, Elena M. Fazio, and Stephen C. Meersman. 2005. "Stress, Health, and the Life Course: Some Conceptual Perspectives." *Journal of Health and Social Behavior*, 46(2): 205-219.

Pearlin, Leonard I. 1981. "The Stress Process." *Journal of Health and Social Behavior*, 22(4): 337-356.

Pearlin, Leonard I. 1999. "Stress and Mental Health: A Conceptual Overview." In A. V. Horwitz and T. L. Scheid (Eds.), *A Handbook for the Study of Mental Health: Social Contexts, Theories, and Systems* (p.161-175). Cambridge University Press.

Pearlin, Leonard I., Scott Schieman, Elena M. Fazio, and Stephen C. Meersman. 2005. "Stress, Health, and the Life Course: Some Conceptual Perspectives." *Journal of Health and Social Behavior*, 46(2): 205-219.

Pearlin, Leonard I. 2010. "The Life Course and the Stress Process: Some Conceptual Comparisons." *Journal of Gerontology: Social Sciences*, 65B(2): 207-215.

Perry, Brea L., Kathi L. H. Harp, and Carrie B. Oser. 2013. "Racial and Gender Discrimination in the Stress Process: Implications for African American Women's Health and Well-Being." *Sociological Perspectives*, 56(1): 25-48.

Petersen, Anne C., and Sheppard G. Kellam. 1977. "Measurement of the Psychological Well-Being of Adolescents: The Psychometric Properties and Assessment Procedures of the How I Feel." *Journal of Youth and Adolescence*, 6(3): 229:247.

Priest, Naomi, Yin Paradies, Brigid Renerry, Mandy Truong, Saffron Karlsen, and Yvonne Kelly. 2012. "A Systematic Review of Studies Examining the Relationship between Reported Racism and Health and Wellbeing for Children and Young People." *Social Science and Medicine*, 1-13.

Quinlan, Jacklyn, Laurel N. Pearson, Christopher J. Clukay, Miaisha M. Mitchell, Qasimah Boston, Clarence C. Gravlee, and Connie Mulligan. 2016. "Genetic Loci and Novel Discrimination Measures Associated with Blood Pressure Variation in African Americans Living in Tallahassee." *PLoS ONE*, 11(12): e0167700. https://doi.org/10.1371/journal.pone.0167700.

Radloff, Lenore S. 1977. "The CES-D Scale: A Self-Report Depression Scale for Research in the General Population." *Applied Psychological Measurement*, 1(3): 385-401.

Roberts, Beverly L., Ruth Dunkle, and Marie Haug. 1994. "Physical, Psychological, and Social Resources as Moderators of the Relationship of Stress to Mental Health of the Very Old." *Journal of Gerontology*, 49(1): S35-S43.

Rosenberg, Morris. 1965. *Society and the Adolescent Self-Image.* Princeton, NJ: Princeton University Press.

Rosenberg, Morris, and Claire B. McCullough. 1981. "Mattering: Inferred Significance and Mental Health among Adolescents. *Research in Community and Mental Health*, 2: 163-182.

Roxburgh, Susan and Kelly Rhea MacArthur. 2014. "Childhood Adversity and Adult Depression among the Incarcerated: Differential Exposure and Vulnerability by Race/Ethnicity and Gender". *Child Abuse and Neglect*, 38: 1409-1420.

Sanders-Phillips. 2009. "Racial Discrimination: A Continuum of Violence Exposure for Children of Color." *Clinical Child and Family Psychology Review*, 12(2): 174-195.

Scherwitz, Larry, Laura Perkins, Margaret Chesney, and Glenn Hughes. 1991. "Cook-Medley Hostility Scale and Subsets: Relationship to Demographic and Psychosocial Characteristics in Young Adults in the CARDIA study. *Psychosomatic Medicine*, 53(1): 36-49.

Seeman, Teresa E., Burton H. Singer, John W. Rowe, Ralph I. Horwitz, and Bruce S. McEwen. 1997. "Price of Adaptation—Allostatic Load and its Health Consequences." *Archives of Internal Medicine*, 157: 2259-2268.

Sellers, Robert M., Cleopatra H. Caldwell, Karen H. Schmeelk-Cone, and Marc A. Zimmerman. 2003. "Racial Identity, Racial Discrimination, Perceived Stress, and Psychological Distress among African American Young Adults." *Journal of Health and Social Behavior*, 43 302-317.

Sewell, Abigail A., Kevin A. Jefferson, and Hedwig Lee. 2016. "Living Under Surveillance: Gender, Psychological Distress, and Stop-Questions-and-Frisk Policing in New York City." *Social Science and Medicine*, 159:1-13.

Sewell, Abigail A., and Kevin A. Jefferson. 2016. "Collateral Damage: The Health Effects of Invasive Police Encounters in New York City." *The Journal of Urban: Bulletin of the New York Academy of Medicine*, 93(1): S42-S67.

Sewell, Abigail A. 2017. "Illness Association of Police Violence: Differential Relationships by Ethnoracial Composition." *Sociological Forum*, 32(S1): 975-997.

Shonkoff, Jack P., W. Thomas Boyce, and Bruce S. McEwen. "Neuroscience, Molecular Biology, and the Childhood Roots of Health Disparities: Building a New Framework for Health Promotion and Disease Prevention." *Journal of American Medical Association*, 301(21): 2252-2259.

Slopen, Natalie, Tene T. Lewis, Tara L. Gruenewald, Mahasin S. Mujahid, Carol D. Ryff, Michelle A. Albert, and David R. Williams. 2010. "Early life Adversity and Inflammation in African Americans and Whites in the Midlife in the United States Survey." *Psychosomatic Medicine*, 72(7): 694-701.

Slopen, Natalie, and David R. Williams. 2014. "Discrimination, Other Psychosocial Stressors, and Self-Reported Sleep Duration and Difficulties." *Sleep*, 37(1): 147-156.

Smith, Rhiannon L., and Amanda J. Rose. 2011. "The 'Cost of Caring' in Youths' Friendships: Considering Associations Among Social Perspective-Taking, Co-Rumination, and Empathetic Distress." *Developmental Psychology*, 47(6): 1792-1803.

Statistics, National Center for Health. Health, United States: With a Special Feature on Socioeconomic Status and Health. Hyattsville, MD: 2011.

Steel, E., J. Mitchell, E. Greywolf, D. Belle, W. Chang, and R. B. Schuller. 1982. "The human Cost of Discrimination." In D. Belle (Ed.), *Lives in Stress: Women and Depression* (pp. 109-119). Beverly Hills, CA: Sage Publications.

Steffen, Patrick R., Maya McNeilly, Norman Anderson, and Andrew Sherwood. 2003. "Effects of Perceived Racism and Anger Inhibition on Ambulatory Blood Pressure in African Americans." *Psychosomatic Medicine*, 65(5): 746-750.

Stevens, James P. 2001. *Applied Multivariate Statistics for the Social Sciences* (4th ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.

Stevens-Watkins, Danelle, Brea Perry, Kathi L. Harp, and Carrie B. Oser. 2012. "Racism and Illicit Drug Use Among African-American Women: The Protective Effects of Ethnic Identity, Affirmation, and Behavior." *Journal of Black Psychology*, 38(4): 471-496.

Stevens-Watkins, Danelle, Brea Perry, Erin Pullen, Jennifer Jewell, and Carrie B. Oser. 2014. "Examining the Associations of Racism, Sexism, and Stressful Life events on Psychological Distress among African American Women." *Cultural Diversity and Ethnic Minority Psychology*, 20(4): 561-569.

Tatum, Beverly D. 1987. *Assimilation Blues: Black Families in a White Community*. New York: Greenwood Press.

Taylor, Shelley E., and Jonathon D. Brown. 1988. "Illusion and Well-Being: A Social Psychological Perspective on Mental Health." *Psychological Bulletin*, 193-210.

Taylor, Shelley E., Baldwin M. Way, and Teresa E. Seeman. 2011. "Early Adversity and Adult Health Outcomes." *Development and Psychopathology*, 23: 939-954.

Thoits, Peggy A. 1995. “Stress, Coping, and Social Support Processes: Where are We? What Next?” *Journal of Health and Social Behavior*, Extra Issue: 53-79.

Thoits, Peggy A. 2010. “Stress and Health: Major Findings and Policy Implications.” *Journal of Health and Social Behavior*, 51: S41-S53.

Thomas, Anita Jones, Karen M. Witherspoon, and Suzette L. Speight. 2008. “Gendered Racism, Psychological Distress, and Coping Styles of African American Women.” *Cultural Diversity and Ethnic Minority Psychology*, 14(4): 307-314.

Turner, R. Jay, and William R. Avison. 2003. “Status Variations in Stress Exposure: Implications for the Interpretation of Research on Race, Socioeconomic Status, and Gender.” 2003. *Journal of Health and Social Behavior*, 44(4): 488-505.

Turner, R. Jay, and Robyn L. Brown. 2010. “Social Support and Mental Health.” In *A Handbook for the Study of Mental Health: Social Contexts, Theories, and Systems* (pp. 200-212). Cambridge University Press.

Turner, R. Jay. 2013. “Understanding Health Disparities: The Relevance of the Stress Process Model.” *Society and Mental Health*, 3(3): 170-186.

Umberson, Debra, Kristi Williams, Patricia A. Thomas, Hui Liu, and Mieke Beth Thomeer. 2014. “Race, Gender, and Chains of Disadvantage: Childhood Adversity, Social Relationships, and Health.” *Journal of Health and Social Behavior*, Vol. 55(1) 20-38.

U.S. Census Bureau. Statistical Abstract of the United States. 128. Washington, DC: 2009.

Utsey, Shawn O. 1999. “Development and Validation of a Short Form of the Index of Race-Related Stress (IRRS)-Brief Version.” *Measurement and Evaluation in Counseling and Development*, 32(3): 149-167.

Utsey, Shawn O., Yasser A. Payne, Ebonique S. Jackson, and Antoine M. Jones. 2002. “Race-Related Stress, Quality of Life Indicators, and Life Satisfaction among Elderly African Americans.” *Cultural Diversity and Ethnic Minority Psychology*, 8(3): 224-233.

Utsey, Shawn O., Norman Giesbrecht, Joshua Hook, and Pia M. Stanard. 2008. “Cultural, Sociofamilial, and Psychological Resources that Inhibit Psychological Distress in African Americans Exposed to Stressful Life Events and Race-Related Stress.” *Journal of Counseling Psychology*, 55(1): 49-62.

Vujanovic, Anka A., Marcel O. Bonn-Miller, and Nancy M. Petry. 2016. “Co-Occurring Posttraumatic Stress and Substance Use: Emerging Research on Correlates,

Mechanisms, and Treatments—Introduction to the Special Issue." *Psychology of Addictive Behaviors*, 30(7): 713-719.

Wheaton, Blair. 1994. "Sampling the Stress Universe." In: *Stress and Mental Health: Contemporary Issues and Prospects for the Universe* by William R. Avison and Ian H. Gotlib. Plenum Press: New York, pp. 77-114.

Wheaton, Felicia V., Courtney S. Thomas, Carly Roman, and Cleopatra M. Abdou. 2018. "Discrimination and Depressive Symptoms among African American Men Across the Adult Lifecourse." *Journals of Gerontology: Psychological Sciences*, 73(2): 208-218.

Williams, David R., Yan Yu, James S. Jackson, and Norman B. Anderson. 1997. "Racial Differences in Physical and Mental Health: Socio-Economic Status, Stress and Discrimination." *Journal of Health Psychology*. 2(3): 335-351.

Williams, David R., and Ruth Williams-Morris. 2000. "Racism and Mental Health: the African American Experience. *Ethnicity and Health*, 5(3/4): 243-268.

Williams, David R., Hector M. Gonzalez, Harold Neighbors, Randolph Nesse, Jamie M. Abelson, Julie Sweetman, and James S. Jackson. 2007. "Prevalence and Distribution of Major Depressive Disorder in African Americans, Caribbean Blacks, and Non-Hispanic Whites." *Archives of General Psychiatry*, 64: 305-315.

Williams, David R., Hector M. Gonzalez, Stacey Williams, Selina A. Mohammed, Hashim Moomal, and Dan J. Stein. 2008. "Perceived Discrimination, Race and Health in South Africa." *Social Science and Medicine*, 67(3): 441-452.

Williams, David R., and Selina A. Mohammed. 2009. "Discrimination and Racial Disparities in Health: Evidence and Needed Research." *Journal of Behavioral Medicine*, 32(1): 1-38.

Williams, David R., Selina A. Mohammad, Jacinta Leavell, and Chiquita Collins. 2010. "Race, Socioeconomic Status and Health: Complexities, Ongoing Challenges and Research Opportunities." *Annals of the New York Academy of Sciences*, 1186: 69-101.

Williams, David R. 2012. "Socioeconomic Disparities in Health in the United States: What the Patterns Tell Us." *American Journal of Public Health*, S186-S196.

Williams, David R., Naomi Priest, and Norman Anderson. 2016. "Understanding Associations between Race, Socioeconomic Status and Health: Patterns and Prospects." *Health Psychology*, 35(4): 407-411.

Williams, David R. 2018. “Stress and the Mental Health of Populations of Color: Advancing Our Understanding of Race-Related Stressors.” *Journal of Health and Social Behavior,* 59(4): 466-485.

Williams, David R., Jourdyn A. Lawrence, and Brigette A. Davis. 2019. “Racism and Health: Evidence and Needed Research.” *Annual Review of Public Health,* 40: 105-125.

Williams, David R., Jourdyn A. Lawrence, Brigette A. Davis, and Cecilia Vu. 2019. “Understanding How Discrimination Can Affect Health.” *Health Services Research,* 54: 1374-1388.

Wills, Thomas A., and Saul Shiffman. 1985. *Coping and Substance Use*. Orlando, FL: Academic Press.

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PLACE OF BIRTH

St. Louis, Missouri

EDUCATION

2015	**Master of Arts**, Sociology, The University of Memphis Thesis: "From Under-Diagnosis to Over-Representation: Black Children, ADHD, and the School-to-Prison Pipeline" Committee: Zandria Robinson, Anna Mueller, & Wesley James
2013	**Bachelor of Arts**, Sociology, Morehouse College

PROFESSIONAL POSITIONS

Beginning Fall 2020	**Assistant Professor,** Department of Sociology, University of Alabama-Birmingham
2019-2020	**Research Program Coordinator** Students Participating as Ambassadors for Research in Kentucky (SPARK) Center for Health Equity Transformation (CHET) University of Kentucky
2019	**Instructor**, *Inequalities in Society*, Online Department of Sociology, University of Kentucky Summer Semester (Session 2)
2018-present (CHET)	**Research Assistant**, Center for Health Equity Transformation University of Kentucky
2018-present	**Member** of Disparities Researchers Equalizing Access for Minorities (DREAM) Scholars Program (UL1TR001998) Center for Clinical and Translation Science (CCTS) College of Nursing CHET at the University of Kentucky
2016-present	**Member** of Research Lab for Interdisciplinary Minority Health Pre-Doctoral Researchers, Led by Dr. Danelle Stevens-Watkins University of Kentucky

SCHOLASTIC AND PROFESSIONAL HONORS

2019	Lyman T. Johnson Torch Bearer Award, University of Kentucky
2019	Clifford C. Clogg Scholarship, the Inter-university Consortium for Political and Social Research (ICPSR) Summer Program in Quantitative Methods of Social Research, University of Michigan in Ann Arbor
2019-2020	American Sociological Association (ASA) Minority Fellowship Program Award
2019	Rising Star Alumnus Award, The St. Louis Morehouse College Parents Association, Inc.
2018-2020	Pilot Study Funding ($5000), Disparities Researchers Equalizing Access for Minorities (DREAM) Scholars Program (UL1TR001998)
2018-2020	Travel Award ($3000), Disparities Researchers Equalizing Access for Minorities (DREAM) Scholars Program (UL1TR001998)
2018-present	Research Assistantship, Center for Health Equity Transformation (CHET) University of Kentucky
2018	Travel Award, Southern Regional Education Board Doctoral Scholars Program
2018	Travel Award, Department of Sociology, University of Kentucky
2016	Travel Award, Southern Regional Education Board Doctoral Scholars Program
2016	Travel Award, Department of Sociology, University of Kentucky
2015-present	Southern Regional Education Board (SREB) Doctoral Scholars Program Fellowship
2014	Alpha Kappa Delta International Honor Society of Sociology, Gamma Chapter
2013	Presidential Tuition Service Scholarship, University of Memphis
2013	Achievement Advisory Council Honors, Achievement School District
2012-2013	Dean's List, Morehouse College

PEER-REVIEWED PUBLICATIONS

2020 Mahaffey, Carlos, Danelle Stevens-Watkins, A. Kathleen Burlew, **Myles D. Moody**, Paris Wheeler, and Shawndaya Thrasher. **"**Testing the Feasibility of Implementing an HIV Prevention Intervention for Incarcerated African American Men: Lessons Learned from a Pilot Study." *Health Promotion Practice*, https://doi.org/10.1177/1524839919896786.

2019 **Moody, Myles D.**, Robyn L. Brown, and Gabriele Ciciurkaite. 2019. "For Better or Worse: An Assessment of the 'Linked Lives' Concept and the Race-Based Effects of Partner Stress on Self-Rated Health among Older Adults." *Journal of Racial and Ethnic Health Disparities*, 6(4): 861-867.

2019 Brown, Robyn L., Kathleen Rospenda, **Myles D. Moody**, and Judith A. Richman. 2019. "Alcohol-Related Effects of Post-9/11 Discrimination in the Context of the Great Recession: Race/Ethnic Variation." *Addictive Behaviors*, 93:154-157.

2019 Wheeler, Paris, Danelle Stevens-Watkins, **Myles D. Moody**, Jardin Dogan, and Dominiqueca Lewis. 2019. "Culturally Relevant Risk and Protective Factors for Nonmedical Use of Prescription Opioids among Incarcerated African American Men." *Addictive Behaviors*, 95(4): 444-453.

2018 Brown, Robyn L., Judith A. Richman, **Myles D. Moody**, and Kathleen M. Rospenda. 2018. "The Enduring Mental Health Effects of Post-9/11 Discrimination in the Context of the Great Recession: Race/Ethnic and Religious Variation." *Society and Mental Health*, 20(10): 1-13.

2017 **Moody, Myles D.** 2017. "'Us Against Them': Schools, Families, and the Diagnosis of ADHD among Black Children." *Journal of Racial and Ethnic Health Disparities*, 4(5): 949-956.

2016 **Moody, Myles**. 2016. "From Under-Diagnosis to Over-Representation: ADHD, Black Children, and the School-to-Prison Pipeline." *Journal of African-American Studies*, 20(2): 152-163.