Suffering in Silence: 
Racial Discrimination and Blood Pressure among African Americans

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Kimberly Ruth Jacob Arriola

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ABSTRACT OF DISSERTATION

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ABSTRACT

Racism poses a major problem for ethnic minorities today. Many African Americans report that slights, harassment, and discrimination related to race are a part of their everyday experience (Essed, 1991; Feagin, 1992). Traditional theories of stress postulate that these experiences would be associated with poorer health status. Indeed, authors have long claimed that racist experiences have negative consequences for African Americans' physical health (Anderson & Jackson, 1987; James, 1985; Myers, 1982), and recently there has been empirical evidence for this contention as well (see Jackson et al., 1996). The current study tests the relationship between racist experiences and one index of physical health, blood pressure, among African American adults. Furthermore, I explored the possibility that personality characteristics (i.e., hardiness and John Henryism) and social support networks may buffer the negative impact that racist experiences are thought to have on blood pressure.

Black adults (N = 115) completed self-report measures of the psychological constructs and had their blood pressures taken on two separate occasions. Results indicated that experiences of racial discrimination were positively associated with diastolic blood pressure and that this relationship was moderated by social support among younger respondents. Counter to prediction, the personality construct of hardiness strengthened the positive relationship between racist experiences and diastolic blood pressure. Finally, John Henryism served to buffer the relationship between racist experiences and self-rated health.

This study furthers current thinking on the relationship between the experience of racial discrimination and health not only by using a more refined index of racist
experiences, but also by exploring the moderators of this relationship. Moreover, it represents an important extension and clarification of previous research on this topic and may help direct policy makers' attention towards a socio-political factor with considerable implications for public health. In light of the critique by Satel (1997) that argues that the link between racism and disease is a sociological myth, it is increasingly important to provide scientific evidence that will allow health officials to make informed decisions about where to stand in this debate.
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Dedicated to my dearest Elvyn,
Mom, and dad
Introduction

Historically, American society has been plagued with significant problems with race relations. Racial discrimination is an integral part of these problems and continues to be inherent in the social order of American society (Essed, 1991). These race problems are rooted in a history of myths and stereotypes concerning people of color that include the premise that the mental capabilities of Blacks are inferior to those of Whites (Bell, Bland, Houston, & Jones, 1983). This premise provided justification for the harsh injustices experienced by African Americans ranging from the brutality of slavery in the 1600's to the subtlety of discrimination in the 1990's. There is no doubt that African Americans' mental health still suffers from the psychological wounds inflicted by discrimination. Indeed, many psychiatrists of color regard racial discrimination as the most significant mental health problem in America (Bell et al., 1983). Furthermore, recent research suggests that the experience of discrimination may take a toll on the physical health of African Americans as well, although this relationship is not straightforward. In order to shed light on this topic, this study tested the relationship between the experience of racial discrimination and one index of physical health, blood pressure, among African American adults. Furthermore, I explored the possibility that personality characteristics (i.e., hardiness and John Henryism) and social support networks buffer the negative impact that racist experiences are thought to have on blood pressure.

Discrimination poses a major problem for African Americans today, and several studies have empirically documented the differential treatment that African Americans experience on a daily basis in seeking employment (Turner, Fix, & Struyk, 1991),
obtaining housing (Yinger, 1988), and pursuing higher education (Feagin, 1992). For example, a 1990 study conducted by the Urban Institute provided evidence of discrimination in hiring practices in Washington, D. C. and Chicago (Turner et al., 1991). By matching 10 pairs of Black and White men for biographical characteristics the authors found that in 20% of the situations, the White applicant advanced further in the hiring process (i.e., submitted an application, underwent a formal interview, and was offered a job) than did the Black job applicant. In contrast, the Black job applicants advanced further only 7% of the time. These data support the contention that in hiring practices there continues to be differential treatment of Black and White applicants, and that at least to some degree, this difference favors Whites.

In a similar vein, Feagin (1992) documented the existence of racial discrimination in higher education. He interviewed Black college students, administrators, and faculty members in order to develop a typology of discriminatory practices that entails verbal and physical aggression, exclusion, dismissal of subculture, and typecasting. His findings indicated that these practices occur quite frequently. Clearly, being subjected to these types of practices imposes substantial psychological stress upon African Americans, which may in turn have adverse effects on their physical and mental health. Indeed, Feagin and Sikes (1994) argue that racial discrimination has been a tremendous drain on the energy of African Americans.

Stress and Physical Health

Most lay people and health practitioners in Western culture have long believed that stress from life events has negative implications for cardiovascular health.
Conventional wisdom purports that stress related to work, family, and finances (just to name a few) will raise blood pressure, putting an individual at risk of having a heart attack (Garrity & Marx, 1979). However, this is a very complex issue that has gone beyond anecdotal accounts to undergo rigorous empirical testing. There are three major approaches to defining stress: the stimulus viewpoint, the response-inferred view, and the transactional perspective. The stimulus approach defines stress in terms of both the external forces in the environment intruding upon an individual or group (Meichenbaum, 1986) and a person's internal drives or needs that result from tissue deprivation (e.g., hunger; Lazarus & Folkman, 1984). Advocates of this approach argue that a certain class of stimuli are inherently stressful (e.g., the loss of a loved one, poverty, hunger). However this view fails to take into account the extent to which individuals differ in their vulnerability to stress or in their response to stress. In contrast, the response-inferred view posits that stress is a particular set of responses made by individuals in threatening environments (Meichenbaum, 1986). This approach argues for individual differences in perceiving a stimulus or event as stressful (Katkin, 1986), but does not allow for the consideration that there are some stimuli that tend to evoke more stress than others. Thus, both approaches leave several crucial questions unanswered (Lazarus & Folkman, 1984).

An alternative and perhaps more practical view of stress taken by both Meichenbaum (1986) and Lazarus and Folkman (1984) is a transactional perspective in which stress is defined as a relationship that exists between the individual and the environment. Folkman (1984) argued that this relationship is constantly changing as both
the individual and environment influence each other. Thus, an individual is neither passively perceiving environmental stress, nor is the environment simply imposing stress upon the individual. The relationship is bi-directional in that an individual's interpretation and appraisal of an event may influence his or her own and others' reactions, thereby maintaining or reducing the stress response. From this viewpoint, stress is conceptualized as an interactive process that occurs between the individual and the environment. This approach lays a firm foundation on which a reasonable definition of stress may be built. Based on this approach, Lazarus and Folkman (1984) presented a definition of stress that will be used throughout the remainder of this paper:

"Psychological stress is a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being" (p. 19). Yet this definition poses several formidable tasks for researchers, such as how to conceptualize the process of appraisal (Meichenbaum, 1986) and how to consistently measure the events or demands of the environment that contribute to this relationship. Nevertheless, clarifying these issues may lead to interesting and fruitful findings.

Since the 19th century, researchers have implicated stress as having a role in many illnesses such as cancer (Dilman & Ostroumova, 1984; Sklar & Anisman, 1981), diabetes (Bradley, 1979; Gonder-Frederick, Carter, Cox, & Clarke, 1990; Halford, Cuddihy, & Mortimer, 1990), leukemia (Greene & Swisher, 1969), cardiovascular disease (Garry & Marx, 1979; Theorell & Rahe, 1975), and hypertension (Cottington, Matthews, Talbott, & Kuller, 1986). Most of this research has demonstrated a positive relationship between
stress and disease, although many of them suffer from methodological and conceptual problems (Johnson, 1986). Furthermore, much of this research is correlational in nature, so causality cannot be determined, although it is often implied by the authors. Despite these shortcomings, research on the relationship between stress and physical health has flourished. Most of this research has examined the impact that major life events (e.g., death of a spouse, divorce, marital separation, and jail term; see Holmes & Masuda, 1974; Johnson, 1986; Rahe, 1974) and daily hassles (e.g., concerns about weight, health of a family member, rising prices of common goods, and home maintenance; see DeLongis, Coyne, Dakof, Folkman, & Lazarus, 1982) have on the physical health of adolescents and adults.

The stressful life events (SLE) approach is based on stimulus definitions of stress and has had a large impact on stress research (see Holmes & Rahe, 1967; Jorgensen & Houston, 1989; Osti, Trombini, & Magnani, 1980). The goal of this approach has been to measure major events (e.g., death of a spouse, personal injury or illness) in terms of how much readjustment is required, as well as the desirability, anticipation, and perceived controllability of the event (Lazarus & Folkman, 1984). Stressful life events have been found to relate to a variety of health-related variables. For example, life stress has been found to positively relate to rates of illness (Rahe, Mahan, & Arthur, 1970; Rubin, Gunderson, & Arthur, 1971) and the utilization of health services (Gortmaker, Eckenrode, & Gore, 1982). Furthermore, research suggests that life stress is related to sudden cardiac death (Rahe & Linde, 1971), heart attacks (i.e., myocardial infarction; Theorell & Rahe, 1975), hypertension (Lal, Ahuja, & Madhukar, 1982), and menstrual
discomfort (Siegel, Johnson, & Sarason, 1979), just to name a few physical health outcomes.

However, this approach has received extensive criticism (Dohrenwend & Dohrenwend, 1978; Lazarus & Folkman, 1984; Rabkin & Struening, 1976) because of faulty assumptions (e.g., that change necessarily produces stress), psychometric problems (e.g., low reliability of the Schedule of Recent Experience Scale), and biases in the events sampled concerning their applicability to people of diverse socio-demographic groups. Additionally, the correlation between SLE and indices of health outcomes rarely exceeds .30 (Rabkin & Struening, 1976) indicating that less than 10% of the variance in health outcomes is explained by SLE. Lazarus and Folkman (1984) further questioned an underlying assumption of this approach that the experience of change alone generates stress. They argued that the absence of change can be quite stressful (e.g., being denied a new job), and expected changes are sometimes not stressful at all (e.g., planned retirement). They also questioned the assumption that only major or profound life events may damage health. Furthermore, distinguishing major life events from minor life events is an individual judgment, not one that can be generally assessed across individuals by researchers. Instead of the SLE approach, Lazarus and Folkman advocate examining minor daily hassles as they relate to health outcomes.

Researchers from this perspective argue that it is not the major life events that impact physical health as much as the frequency and appraisal of minor daily hassles (e.g., losing one's house keys, getting a ticket). Although few studies have examined the relationship between daily hassles and hypertension specifically, most of the research
based on this approach has demonstrated that hassles are strongly related to physical health (Miller, Wilcox, & Soper, 1985; Wu & Lam, 1993; Zarski, West, Gintner, & Carlson, 1987), often more so than stressful life events (Chan & Lee, 1992; DeLongis et al., 1982; Holahan, Holahan, & Belk, 1984; Kanner, Coyne, Schaefer, & Lazarus, 1981; Ruffin, 1993). For example, DeLongis et al. (1982) examined the relationship between major life events, daily hassles, and physical health among 100 adults. They found that hassles scores were more strongly associated with health than SLE, and even after statistically controlling the effects of life event scores, hassles were still significantly related to physical health. Thus, this construct appears to be related to physical health somewhat independently of stressful life events.

However, neither of these approaches examine culturally specific stressors. This is a notable omission for minority individuals (e.g., ethnic minorities, homosexuals, recent immigrants, the elderly, the handicapped, language minorities, etc.) because the stress that results from their forced marginalization goes untapped. In light of African Americans' status as a stigmatized ethnic minority group in American society, it appears that research examining the impact of these generic stressors and hassles on their physical health excludes a very important aspect of their stress: namely the impact of racial discrimination. The life events models (major and minor) are inappropriately applied to African Americans because the scales do not address certain experiences that are specific to the lives of African Americans and other minority groups. A particular stressful life event or daily hassle may have a larger impact on an individual if it is attributed to discrimination, and traditional scales do not address this possibility. Furthermore,
research suggests that due to discrimination, African Americans and Whites experience different types of stress in occupational settings (James, LaCroix, Kleinbaum, & Strogatz, 1984), at school (Feagin, 1992; Fleming, 1984), in obtaining housing (Feagin & Feagin, 1978; Yinger, 1988), in public places (Feagin, 1991), and in the delivery of health care (Davis, Brown, Allen, Davis, & Waldron, 1995; Feagin & Feagin, 1978). Armstead, Lawler, Gorden, Cross, & Gibbons (1989) argued that a significant source of stress among African Americans may be due to the struggle for survival in a modern society, the social disorder that results from discrimination and poverty, and the difficulties of coping with minority status.

Discrimination and Physical Health

In his classic treatise on prejudice, Allport (1954/1979) defined discrimination as the denial of equal treatment to either individuals or groups. Whereas discrimination may be defined as "a selectively unjustified negative behavior toward members of the target group" (Dovidio & Gaertner, 1986, p. 3), racial discrimination is a particular type of discrimination that occurs due to an individual's racial/ethnic background. Experiences of discrimination may be particularly painful and stress-producing to the victim. Based on his interviews of Black college students, administrators, and faculty members on predominantly White campuses, Feagin (1992) reported many of his respondents feeling angry and hurt as a result of their experiences of discrimination. Similarly, both Feagin and Sikes (1994) and Cose (1993) interviewed African American adults and reported similar feelings of rage, frustration, humiliation, resignation, and depression as a result of their experiences with discrimination.
Although most social psychological research on discrimination has focused on why members of the majority group discriminate, Dion and his colleagues (Dion, 1979; Dion, 1986; Dion, Dion, & Pak, 1992; Dion, Earn, & Yee, 1978) have launched one of the few attempts in the literature to investigate the effects of being the victim of discrimination. Dion (1978) explored the affective and social psychological consequences of being victimized by discrimination using an attribution paradigm. This paradigm entails subjecting minorities to an experimental situation in which they encounter a setback, then leading them to believe that their failure may or may not have been attributed to discrimination. From these experiments, Dion concluded that perceiving personal discrimination leads to stress, negative affect, and strengthened in-group identification. Furthermore, research by Dion et al. (1992) found that experiences of discrimination were significantly positively correlated with psychological symptoms such as nervousness, the inability to cope, and worrying in a sample of Chinese Canadian citizens.

Indeed, Thompson (1996) presented research that suggests that discrimination is a major stressor in the lives of African Americans. She sought to determine whether perceived discrimination was related to feelings of subjective distress (i.e., intrusive thoughts and avoidance of the meaning and consequences of the event) as are many other stressful life events. African American participants were asked whether or not they had experienced discrimination in their lives and if any of these experiences had taken place within the past six months. She found that 34% of participants reported a racist experience within the six months prior to the interview and that the average score for
intrusion symptoms increased as the seriousness of the event increased. Avoidance symptoms were unrelated to the seriousness of the event. This study empirically demonstrated that the association between stress related to discrimination and mental health may be similar to that of Stressful Life Events and mental health.

Additional research by Williams, Yu, Jackson, and Anderson (1997) similarly demonstrated that the experience of discrimination may be negatively associated with mental and physical health. In a study of 1,106 Black and White adult respondents, these authors measured self-rated ill-health, psychological distress, psychological well-being, general stress (chronic stress, financial stress, and stressful life events), and two types of race-related stress: discrimination and everyday discrimination. Discrimination was indexed by three items in which respondents reported major experiences of unfair treatment (e.g., being unfairly fired or denied a promotion), somewhat akin to the stressful life events approach. Everyday discrimination tapped the "more chronic, routine, and relatively minor experiences of unfair treatment" (p. 340) and may be likened to the daily hassles approach (e.g., being treated with less courtesy or less respect than others).

Interesting findings emerged regarding everyday discrimination. While controlling for demographic variables (such as race), there were significant, positive relationships between everyday discrimination and self-reported ill health, the number of days that the respondent was incapacitated by physical and emotional distress, and psychological distress. Furthermore, everyday discrimination was negatively associated with psychological well-being using the same controls. However, when general stress
was controlled, the relationship between everyday discrimination and self-reported ill health became insignificant. Nevertheless, the relationships between everyday discrimination and the other three dependent variables persisted even after all variables had been entered into the model. The research presented thus far offers initial support for the contention that the experience of discrimination may be associated with physical and mental health outcomes; nevertheless, further research is necessary to establish that such a relationship exists between race-related stress and blood pressure more specifically.

Essential Hypertension

It is well documented that Blacks are more likely to suffer from hypertension than Whites (Adams, 1932; Hildreth & Saunders, 1992; Hypertension Detection and Follow-up Cooperative Group, 1977; Moorman, Hames, & Tyroler, 1991; Reed, Shulman, & Shucker, 1994; Roberts & Rowland, 1981). In fact, the prevalence of hypertension among African Americans is the highest of any population in the world (Grim, Henry, & Myers, 1995). Most authors cite the prevalence of hypertension in Blacks across all age ranges to be between 25% and 38% depending on how hypertension is defined (Armstead et al., 1989; Reed et al., 1994; Hildreth & Saunders, 1992), roughly twice the prevalence rate of hypertension among Whites (Cornoni-Huntley, LaCroix, & Havlik, 1989). Furthermore, this higher morbidity rate is present even when controlling for age, body fat composition, and socioeconomic status (SES; Bone, Hill, & Levine, 1994).

Blacks are more likely to develop hypertension at a younger age and with more serious complications; consequently, mortality due to hypertension is higher than in other racial groups (Bone et al., 1994; Myers, Anderson, & Strickland, 1989; Hildreth &
Saunders, 1992; Saunders & Williams, 1975). Therefore, it has become increasingly necessary for social science researchers to identify the psychological and sociological risk factors that may play a role in the alarming prevalence and incidence of this disease among African Americans. By examining individual differences among African Americans in these risk factors, the current study sought to address this question.

Hypertension is a general term for blood pressure that is elevated beyond specifically defined parameters given a person’s age. Although the definition of “normal” blood pressure is contingent upon many factors, the following standards may provide a rough guide: a) normal, up to 138/88; b) borderline, 140/90 to 158/94; and c) high, above 160/95 (Anderson, 1988; Bailey, 1991; Gillum & Gillum, 1984; Herd & Weiss, 1984). For each pair of numbers, the first number is systolic blood pressure (SBP) and is a measure of the heart's contraction. The second number is diastolic pressure (DBP) and represents the period between heart beats (Jones & Mitchell, 1993). Essential or primary hypertension (EH), one of two different types of hypertension, accounts for 90 to 95% of all cases of the disorder. It is a “catch-all” term for people for whom no precise cause of the disorder can be determined. Secondary hypertension, which accounts for 5 to 10% of all cases, is caused by a pre-existing condition (such as kidney disease, hyperthyroidism, drug abuse, or birth control pills). Once the cause has been identified, secondary hypertension can usually be reversed. However, essential hypertension is more difficult to cure because there is no easily identifiable cause (Jones & Mitchell, 1993). Nevertheless, with anti-hypertensive medication that is taken properly, this disease can usually be reversed.
Most researchers subscribe to an interactional perspective that implicates genetic, psychological, and sociological factors as contributing to the development of EH. This "diathesis-stress model" argues that genes may predispose an individual to develop hypertension, but psychosocial factors, such as SES, personality, and behavioral factors trigger the onset of the disease (Myers et al., 1989; Myers & McClure, 1993). Nonmodifiable risk factors include age, race/ethnicity, and family history of EH, whereas modifiable risk factors include dietary habits, obesity, and physical inactivity (Jones & Mitchell, 1993). Other possible risk factors that may not be classified into these two categories include SES (Moorman, Hames, & Tyroler, 1991) and the experience of stress (James et al., 1984). Taken together, these findings indicate that EH is caused by a variety of genetic, psychological, and sociological factors. The current study focused on the psychological and sociological factors, more specifically, the experience of racial discrimination as it relates to blood pressure.

Stress, Discrimination, and Blood Pressure

Based on the contention that discrimination is a significant source of stress in the lives of African Americans, Armstead et al. (1989) sought to demonstrate experimentally that racial stressors cause changes in blood pressure. These authors observed blood pressure reactivity among 27 African American college students as they watched a neutral, racist, and non-racist anger-provoking film excerpt. They found that the difference in blood pressure at baseline and blood pressure after the experimental manipulation was highest after the racist stimuli. The mean arterial pressure response to watching the racist scene was significantly higher than both baseline blood pressure and
the response to watching anger-provoking non-racist stimuli. This study is widely cited, perhaps because it was one of the first studies to demonstrate experimentally that discrimination has negative physiological effects on African Americans that may ultimately be related to hypertension.

However, Armstead et al. (1989) were not the first authors to assert that discrimination may have negative consequences for the physical health of African Americans. Several authors have made this claim (Anderson & Jackson, 1987; James, 1985; Myers, 1982), yet only recently has there been empirical evidence for this contention (see Jackson et al., 1996). The literature examining blood pressure as a health outcome is small and, unfortunately, quite contradictory. As a result, there is still much confusion about the directionality of the relationship between personal experiences of discrimination and EH, and the current study sought to reconcile these discrepant findings. Five studies have examined this relationship, and they will be described below. Two of these studies have found a positive relationship between discrimination and EH (Dressler, 1990; Landrine & Klonoff, 1996a), one has found a negative relationship (Krieger, 1990), one has found no relationship (Broman, 1996), and one has found mixed results (Krieger & Sidney, 1996).

In the first study, Dressler (1990) examined the relationship between chronic social role stressors and hypertension among African Americans. The measure of chronic social role stress included general items measuring stress associated with employment, marriage, and finances, as well as items tapping ethnic relations such as "How often do you feel you missed a promotion because you're Black?" and "How often do you feel
you're not given real job responsibilities because you're Black?". Respondents were 186 26-55-year-old residents of a southern Black community. Results indicated that among 40-55 year old participants, chronic social role stressors bore a significant, positive relationship to systolic blood pressure (SBP), while controlling for such variables as age, sex, body mass index, skin color, and socioeconomic rank. Similarly, Landrine and Klonoff (1996a) administered surveys to 118 African Americans that contained such questions as "How many times have you been treated unfairly by your employers, bosses, and supervisors because you are Black?" and "How many times have you been treated unfairly by strangers because you are Black?" and asked them to report the frequency of occurrence for each event within the past year and in his or her entire life. Additionally, respondents were asked to appraise how stressful the event was. Results indicated that participants who reported that they had been diagnosed with hypertension also reported more frequent racial discrimination throughout their lives and appraised these events as more stressful than normotensives.

In contrast, Krieger and her colleagues examined the same question (1990; Krieger & Sidney, 1996), but found results that were somewhat contradictory of the previous research. They hypothesized that Black respondents reporting fewer experiences of discrimination would have a higher prevalence of hypertension. This hypothesis was based in part on research suggesting that suppressed anger may be a risk factor for developing hypertension (Gentry, 1985; Harburg, Blakelock, & Roeper, 1979; Johnson, 1989) and a study that found that among individuals employed in stressful occupations, those who tend to report low levels of job stress tended to have a higher mean arterial
blood pressure, a higher prevalence of hypertension, and higher systolic blood pressures (Winkleby, Ragland, & Syme, 1988). They also based their hypothesis on the concept of "internalized oppression" in which social groups that have experienced profound discrimination may internalize the negative stereotypes and attribute their experiences of unfair treatment to personal inadequacy rather than to discrimination.

Perhaps somewhat surprisingly, Krieger has found at least partial support for this hypothesis. In her 1990 study, she found that among 51 Black women between the ages of 20 and 80 years, those who reported not experiencing any instances of discrimination (both racist and sexist) were 2.6 times more likely to have high blood pressure than those who reported 1 or more such instances. However, Broman (1996) sought to replicate this study with a sample of 312 African American men and women in a different area of the country and found null results: Self-reported experiences of discrimination were unrelated to both hypertension diagnosis and heart disease.

Somewhat consistent with Krieger (1990), Krieger and Sidney (1996) found that among 1,974 Black and 2,112 White adults, working class Blacks who reported experiencing discrimination in one or two of the seven situations used in the study (e.g., at school, when applying for a job) tended to have blood pressures that more closely resembled those of Whites. Working-class Blacks who failed to indicate any experiences of discrimination in these situations and those who reported experiencing three or more experiences had blood pressures that were 4 to 7 mm Hg higher than those of Whites. These findings suggest that among working class Black Americans there may be a curvilinear relationship between experiences of discrimination and blood pressure.
However, among executive and professional Black adults the findings were less straightforward: The pattern for professional Black women paralleled the working class subsample in that women who reported experiencing discrimination in one or two situations had blood pressures that more closely resembled those of Whites. Those professional Black women who did not report experiencing any discrimination in the seven situations and those who reported experiencing three or more experiences had the greatest disparity with White blood pressures (i.e., the Black women's blood pressures were higher). Among professional Black men, the pattern was exactly the opposite: Those who reported experiencing discrimination in one or two of the situations had the greatest disparity with the blood pressures of White participants. Professional Black men who reported not experiencing any experiences of discrimination and those who reported experiencing three or more experiences had blood pressures that more closely resembled those of the White participants. This study by Krieger and Sidney (1996) prompted a scathing review by Satel (1997) who argued that the findings were muddled and inconclusive. Even if this is the case, I would argue that inconclusive results such as these implore researchers to refine measures and continue this line of research (as the current study did) not abandon it as Satel advocates.

To summarize, traditional theories of stress would postulate a positive relationship between self-reported experiences of discrimination and blood pressure. However research has not always supported this contention; the five studies presented thus far paint a mixed portrait of the manner in which these variables are related. Both Dressler (1990) and Landrine and Klonoff (1996a) found stress associated with
discrimination to be positively related to blood pressure and hypertension diagnosis, respectively. In contrast, Krieger (1990) found that not reporting any experiences of discrimination was negatively related to hypertension diagnosis among women; however, this finding is attenuated by the fact that Broman (1996) failed to replicate. Finally, Krieger and Sidney (1996) found mixed results based on SES and gender.

It may be the case that these inconsistencies are due to differences in the manner in which experiences of discrimination were measured. Specifically, Krieger and Sidney (1996) asked respondents to report experiences of discrimination due to gender, race or color, socioeconomic position, social class, sexual preference, or religion. However, the findings reported from Krieger (1990), Broman (1990), and Landrine and Klonoff (1996a) are specific to racial discrimination. Moreover, even within these three studies there were differences in how racial discrimination was measured. In the first two studies, respondents were asked to respond yes or no to whether or not they had experienced racial discrimination across six situations, not allowing for the possibility that there was variation in the frequency with which any given type of discrimination was experienced. On the other hand, Landrine and Klonoff assessed frequency of racial discrimination across 17 situations.

Additionally, the items assessing racial discrimination in Dressler (1990) are just three of 16 items that form a composite of chronic social role stress, so this index is influenced by stress related to finances, marriage, and work as well. The experience of racial discrimination is a difficult construct to measure, and it may be that differences in how it was measured across these five studies are contributing to inconsistent findings.
Clearly more precise and widely used indices of racial discrimination are necessary in order to advance the current knowledge on this topic.

The current study sought to reconcile these findings by using separate indices of the frequency of experiences of discrimination and the appraised stressfulness, as was done by Landrine and Klonoff. However, these individual indices only capture one aspect of the experience of discrimination conceptually; a more comprehensive measure would use some combination of these indices. Moreover, they were highly interrelated in the current study and would pose interpretational problems if analyzed independently. Thus, I amalgamated these indices to form one index of an individual's overall experience of racial discrimination.

In contrast to the hypothesized positive relationship between self-reported experiences of discrimination and blood pressure, an often cited theory proposed by Crocker and Major (1989) offers an antithetical position. They argued that there may be substantial psychological benefits associated with being able to attribute poor outcomes to discrimination. These authors theorized that for members of stigmatized and oppressed groups, being able to point to discrimination as the cause of their negative experiences and outcomes may protect self-esteem. Using prejudiced attitudes or group discrimination to explain negative experiences may serve a self-protecting function for minorities regardless of whether or not prejudice was the "true" cause of the experience. Indeed, the research on mental health outcomes supports the claim that higher self esteem is related to external attributions for negative outcomes and internal attributions for positive outcomes (Crocker, Alloy, & Kayne, 1988; Crocker & Major, 1994; Tennen &
Hertzberger, 1987). However, it is still unclear whether this theory also applies to physical health outcomes, such as blood pressure. Thus, the current study sought to address this question.

Potential Confounds of Racist Experiences

The measurement of an individual's experience of racial discrimination is prone to error because of the biases associated with perceiving and reporting these experiences. Thus, I thought that it was necessary to control for confounding variables in order to improve the measurement of racist experiences. Two psychological variables that I controlled for were repression and an individual's general tendency to perceive racial discrimination due to research suggesting that these variables may influence the perception of and subsequent reporting of personal experiences of racial discrimination.

Repression

The current research examining racist experiences and health outcomes heavily relies on the use of self-report data, which carry inherent problems concerning the "accurate" reporting of experiences of racial discrimination. Indeed, there is research suggesting that respondents may under-report personal accounts of discrimination (Crosby, 1984; Ruggiero & Taylor, 1995; Sigel, 1996; Taylor, Wright, Moghaddam, & Lalonde, 1990; Taylor, Wright, & Porter, 1994). In a study of gender discrimination among working women, Crosby (1982) was the first to document the robust finding in American society that people tend to perceive more discrimination at a group or societal level than at a personal or individual level. Subsequently, Sigelman and Welch (1991) replicated this finding in African Americans. Crosby (1984) argued that this finding may
be due to the minimization of personal accounts of discrimination, although other explanations have been advanced (Crosby, Clayton, Alksnis, & Hemker, 1986; Taylor et al., 1990). The current study took these findings into account, at least to some extent, by measuring respondents tendency to deny experiencing negative affect.

It is possible that some respondents may unknowingly underreport negative experiences, perhaps including their experiences with discrimination, as a form of coping. This is termed "repression", and it may appear to weaken the relationship between self-reported experiences of discrimination (and the appraised stressfulness) and health outcomes. This construct is thought to vary individually; those who are most concerned with protecting their self-images by any means necessary are particularly susceptible to using the repressive coping style. Keeping threatening memories, affect, and impulses out of awareness serves a self-protective function for repressors (Weinberger, 1990).

Psychologists have held very mixed views concerning whether or not repression is a useful construct (Erdelyi & Goldberg, 1979; Holmes, 1972; 1974). Also known as motivated forgetting or the selective forgetting of painful experiences (Bowers, 1984), this term has particular relevance to the literature on discrimination and health outcomes because respondents are being asked to recall possibly painful and stress-provoking negative life events. In an effort to cope with these events, respondents may avoid thinking about these experiences because of the negative affect that typically accompanies these memories. Freud (1957) discussed two types of repression: primal repression, which occurs when stimuli are denied entrance into the conscious mind, and repression proper, or the alteration of memories that have already been consciously perceived by the
individual. The current discussion focuses on this latter form of repression, repression proper. Although Freud originally only theorized about the repression of sexual and aggressive impulses, researchers have since expanded the theory to include experiences associated with any type of negative affect (see Erdelyi & Goldberg, 1979 for a review).

Laboratory research has supported the validity of the concept of repression in that individuals who are characterized as utilizing a repressive coping style have been demonstrated to experience great difficulty recalling particular life experiences (Davis, 1987; Davis & Schwartz, 1987). Davis and Schwartz (1987) subjected three groups of undergraduate female participants (repressors, low anxious, and high anxious) to six conditions of recall (general, happiness, sadness, anger, fear, and wonder) whereby they were asked to recall an experience from childhood that was associated with each of the emotions. They found that repressors (operationalized as those who had both low anxiety and high defensiveness) recalled significantly fewer negative experiences than did either of the two groups of participants. In an extension of this earlier study, Davis (1987) found that repressors do not suffer from a general lack of memory, but have difficulty recalling memories that are specific to the self and those that are associated with feelings of fear and self-consciousness. This research program suggests that experiences of discrimination in particular may be difficult for repressors to recall because not only do they involve the self, they are also likely to be associated with negative affect.

Although the research examining the relationship between repression and physical health is small, it paints a rather grim portrait of the repressors. Repression has been linked to illnesses such as asthma (Mathe & Knapp, 1971), cancer (Jensen, 1987), and
hypertension (Davies, 1970; King, Taylor, Albright, & Haskell, 1990; Mann & Delon, 1995). For example, King et al. (1990) explored the relationship between the repressive coping style and blood pressure among 120 adult men and women. They found that repressors (also operationalized as those who had both low anxiety and high defensiveness) had significantly higher average resting systolic blood pressures than individuals who were either categorized as being low anxious (those who scored low on both anxiety and defensiveness) or moderately-anxious (those who scored high on anxiety and low on defensiveness). Repression is thought to directly affect the development of disease through its association with the release of particular stress-related hormones and alteration of immune system functioning. Indirectly, repression may deter health-promoting behavior through an individual’s failure to acknowledge having a particular disease (Weinberger, 1990). Thus, in this study, I explored the relationship between repression and several mental and physical health outcomes such as life satisfaction and blood pressure as well as the possibility that repression is a moderator of the relationship between racist experiences and health outcomes.

**Perceptions of Discrimination**

Another variable that may confound the present research on this topic concerns individual differences in the proclivity to perceive discrimination. Measures that tap the frequency at which racial discrimination occurs may quite simply be measuring an individual's readiness to perceive discrimination. Moreover, whether or not it is more advantageous to have a greater awareness of the experience of discrimination is unclear. Although situational characteristics play an important role in determining whether an
instance of unfair treatment is due to discrimination, I am arguing for inter-individual differences in the readiness to perceive discrimination. Within the realm of mental health there is disagreement concerning whether it is “healthier” to accurately perceive reality or to optimistically redefine psychologically threatening stimuli. In other words, is an individual better off (physically and psychologically) being able to accurately perceive discrimination? Taylor and Brown (1988) might argue no, but Colvin and Block (1994) might emphatically argue yes.

The Taylor and Brown formulation argues that mentally healthy people have the ability to distort reality in a manner that increases self-esteem, fosters illusions of control, and aids optimistic thinking about future occurrences. Indeed, there is research suggesting that feeling a sense of control and thinking optimistically about the future are related to positive physical health outcomes (see Peterson & Bossio, 1991; Taylor, 1989).

In contrast, Colvin and Block (1994) argued that the Taylor and Brown thesis is based on a shaky empirical foundation and conceptual structure. They maintained that adaptive behavior cannot be the product of cognitive distortions over the long run. However, it may be the case that psychological threat and feelings of a lack of control over the situation accompany “accurately” perceiving discrimination. Based on this view, it is conceivable that having a greater perception of discrimination would be associated with less mental and physical health as the Taylor and Brown formulation would argue.

However, both of these positions argue for a linear relationship between an individual’s readiness to perceive discrimination and health, but this may not be the best type of model. This debate may be settled by allowing for a curvilinear relationship to
exist between these variables. I would argue that taken to the extreme, constantly ascribing unfair treatment to discrimination (e.g., being overly sensitive) may be as detrimental to health as denying that it is a problem in our society. Having a heightened sensitivity to attributions of discrimination may result in ruminations and stress resulting from a lack of control over the situation, which may then be associated with poorer health outcomes. On the other hand, individuals who always attribute unfair situations that they encounter to personal inadequacy (because the individual is unable to make the attribution of discrimination) may encounter just as much stress and also experience poorer health outcomes. I would argue that the people with a moderate tendency to perceive discrimination are healthier because they are able to acknowledge their own contribution to outcomes but can also make external attributions for personal shortcomings when necessary. Thus, in the current study I tested the possibility that having a moderate tendency to perceive discrimination (measured independently of frequency and appraisal of experiences of discrimination) is associated with better health outcomes. Furthermore, I examined the possibility that the tendency to perceive discrimination moderates the relationship between racist experiences and physical health outcomes.

Despite the disagreement concerning the health consequences of perceiving discrimination, there is some agreement concerning several personality characteristics that relate to having more of these perceptions. Individual characteristics that may relate to a greater frequency with which discrimination is perceived include racial consciousness (Gary, 1995) and ethnic identity (Dion et al., 1992; Keefe, 1992). People
who tend to be more racially conscious and those who have a high level of ethnic identification may more readily perceive discrimination because this construct has been activated more frequently in their past (Essed, 1991). Gary (1995) found that among 537 African American men, those participants who were more racially conscious were also more likely to perceive the experience of racial discrimination than those who were less racially conscious. In a similar vein, Keefe (1992) argued that the consciousness that one may be discriminated against by virtue of his or her ethnic group membership is an important component of ethnic identity. Additional research suggests that ethnic identification may have implications for the techniques that an individual uses in coping with discrimination (Chavira & Phinney, 1991). Thus, in the current study, I explored the relationship between both of these personality characteristics and an individual's tendency to perceive discrimination.

Moderators of the Stress/Illness Relationship

Social support

The relationship between racial discrimination and health is very complex and may be moderated by many different variables. Three such variables, social support, hardiness, and John Henryism, were considered in the current study. A large literature examines the role that social support plays in the stress-illness relationship (see Uchino, Cacioppo, & Kiecolt-Glaser, 1996 for a review). Based on definitions offered by Dressler (1991) and House and Kahn (1985), social support may be defined as the perception of available resources or assistance from other people. It is a dynamic construct in that over the course of the life span one's perceptions of social support may vary greatly. Wortman
and Conway (1985) presented several functions of social support including allowing an individual to: 1) receive positive affect from others, 2) receive confirmation of beliefs, feelings, and interpretations, 3) openly express feelings and beliefs, 4) receive advice or new sources of information, 5) receive material aid, 6) feel needed in a system that provides mutual support for its members.

Much of the research on this topic argues that social support is related to mental and physical health via one of two different pathways. The direct (or main) effect hypothesis argues that social support improves health regardless of stress level due to the perception that others will provide aid should a stressful event arise or simply due to membership in a social network (Cohen & Syme, 1985). The buffering hypothesis, which provides a basis for the current study, argues that social support may moderate the relationship between stress and disease by serving a protective function. Resources provided by others may help an individual appraise a situation as less stressful or facilitate healthy behaviors that may reduce the impact of the stressor (House, 1981).

Research has generally supported the buffering hypotheses and the main effect hypothesis to a lesser extent (Berkman & Syme, 1979; Cohen & Syme, 1985; Cohen & Wills, 1985; Dressler, 1991; Kessler & McLeod, 1985).

There are at least two methods for conceptualizing social support. Earlier studies tended to use the network or structural approach in which social support was conceptualized as the mere existence of or quantity of particular social relationships (Dressler, 1991); however, this approach has yielded mixed support for the effects of social support (Cohen & Wills, 1985; Eaton, 1978; Kessler & Essex, 1982). This
research is severely plagued by problems with interpretation because the existence of 
social relationships does not necessarily mean that the relationship offers beneficial 
effects. Dressler (1991) argued that "not all relationships are supportive; indeed, some 
marriages or 'friendships' can be competitive, hostile, and damaging" (p. 20). To address 
this criticism, many researchers turned to the functional approach of conceptualizing 
social support by measuring respondents' perceptions of different types of support, such 
as material, instrumental, informational, or emotional support. Nevertheless, both of 
these traditions have somewhat consistently found that better social support is related to 
lower blood pressure (see Uchino et al., 1996, for a review).

Social support and health. Despite this general finding, much of the research on 
social support and health outcomes is based on cross-sectional or retrospective designs 
(Wortman & Conway, 1985). The correlational nature of these studies precludes the 
interpretation that social support influences health outcomes. The case may be that ill 
health may reduce social support (e.g., when an individual is grouchy or stigmatized due 
to contagiousness), increased social support may improve health outcomes (e.g., family 
members may encourage an individual to adhere to medication), or some third variable 
may explain the relationship. Several longitudinal studies have been conducted to 
address some of these concerns.

In one such study, Berkman and Syme (1979) tested the main effect hypothesis by 
exploring the relationship between social networks and mortality at the beginning and end 
of a nine-year period. These authors examined four types of social and community ties 
among 6,928 adults: marriage, close friends and relatives, church membership, and
informal and formal group associations. They found that across all age groups, being married, having high contact with friends and relatives, and belonging to church as well as other groups were associated with a lower mortality rate among both men and women. The combined index revealed that isolated women were 2.8 times more likely to die by the end of the study and isolated men were 2.3 times more likely to die as compared to those with the most social contact. Furthermore, these findings are independent of self-reported physical health status (at the initial meeting), SES, and a variety of health practices (e.g., smoking, drinking, physical activity). Similar results were obtained in a longitudinal study conducted by House, Robbins, and Metzner (1982). Blazer (1982) conceptualized social support slightly differently but found very similar results in his longitudinal study. For this study, social support was defined by the respondents' social roles and available attachments, frequency of social interactions, and perceived support. Data for this study were collected at the beginning and end of a 30 month time period. Results indicated that the relative risk of mortality was 2.04, 1.88, and 3.40 for impaired social roles and attachments, frequency of social interactions, and perceived support, respectively, even while controlling the effects of 10 confounding variables (e.g., age, gender, race, SES). Taken together, the longitudinal research presented thus far demonstrates that a stronger social support system (regardless of how it is conceptualized) contributes to having a longer life.

Research also generally supports the hypothesized buffering effect of social support (Cobb, 1976; Cohen & Wills, 1985; Dressler, 1991; Janes, 1990; LaRocco, House, & French, 1980; Strogatz & James, 1986; but see Blumenthal et al., 1987;
Ganster, Fusilier, & Mayes, 1986). However, Dressler (1994) argued that the manner in which social support is conceptualized depends on the traditional social structure, particularly the kinship systems that serve to organize social relationships in a culture. Thus, the measures used to assess this construct in White American society may not necessarily tap the aspects of this construct that are important in African American culture.

In his 1991 study, Dressler measured social support in a rural Southern Black community along two dimensions: kin and non-kin. In this study, he hypothesized that kin support would buffer the stress-illness relationship among older respondents (greater than 40 years of age) because the extended family has been a social system that African Americans traditionally have used to cope with societal ills (e.g., segregation). In contrast, he hypothesized that non-kin support would serve as a buffer among younger respondents because these individuals' most salient concerns (such as social mobility and economic success) are more likely to be shared by their peers. This shared emotional experience with peers may lead to a greater reliance on them rather than on the extended family for support.

Results supported both hypotheses: Non-kin social support buffered the relationship between lifestyle incongruity (the extent to which one's lifestyle exceeds his or her socioeconomic status) and diastolic blood pressure among younger participants, and kin social support buffered the relationship between status incongruity and both systolic and diastolic blood pressure among older respondents. He concluded that the meaning of social support may vary inter-generationally. In sum, these findings support
the contention that the meaning of social support is influenced by cultural factors, and this
must be taken into account when measuring this construct.

Hardiness

In addition to social support, a fair amount of research has examined personality
patterns as they relate to illness (Krantz & Hedges, 1987; Scheier & Carver, 1987; Suls &
Rittenhouse, 1987). Efforts to identify the "hypertensive personality" have been to no
avail, perhaps because this illness typically develops from a complex interaction of
biological, psychological, sociological, and behavioral factors. However, there is much
more encouraging research by Kobasa (1979) that offers insight into how individual
differences in personality may buffer the relationship between stress and both mental and
physical illness. The current study sought to expand the current knowledge on hardiness
by examining how it relates to a particular type of stress.

Recall that the correlation between stressful life events and health outcomes rarely
exceeds .30 (Rabkin & Struening, 1976), so there are a substantial number of individuals
who report many stressful life events but remain healthy. Kobasa (1979) sought an
explanation for cases that were left unexplained by the SLE approach. She developed the
theory of hardiness to explain why some business executives reported high stressful life
event scores, yet reported few symptoms of physical illness. The pattern exhibited by
these individuals runs counter to the prediction of life events theory (high stress-more
physical symptoms), thus before Kobasa's work there had been little explanation for this
finding. She interviewed executives at a regional telephone company and hypothesized
that those with high SLE scores and low illness scores would display a particular personality style.

This style is characterized by three tendencies: commitment, control, and challenge. Individuals with a tendency towards strong commitment to various aspects of their lives (e.g., work, family, interpersonal relationships) are more likely to be interested in the things that they are involved in. These individuals, in contrast to those who are more alienated, tend to exert the greatest effort in their daily responsibilities and approach their tasks with great cheer and zest. Individuals who have a sense of control feel empowered to influence the people and events around them, as well as to turn disadvantages into advantages. They tend to be more optimistic than those who feel powerless, and they are unlikely to take things at face value. Finally, individuals who enjoy a sense of challenge are more open to life changes; they view life as a dynamic process. In contrast, those who tend to feel threatened prefer to view life as being more static and are less amenable to change. The combination of these three characteristics, commitment, control, and challenge, is termed hardiness, and they are theorized to buffer the stress-illness relationship by affecting health habits and contributing to transformational coping, as opposed to regressive coping (Maddi & Kobasa, 1984). Maddi and Kobasa argued that transformational coping is most effective and involves altering one's perceptions such that events seem less stressful. This requires optimistic thinking and decisive action for the change to be invoked. The less effective mechanism, regressive coping, is characterized by pessimistic thinking and evasive behavior that allows the individual to avoid contact with the stressful event.
Hardiness and health. Kobasa (1979) demonstrated initial support for this construct using 161 male middle and upper level executives. Based on scores on the Recent Stressful Life Events Scale and those on the Seriousness of Illness Survey, she categorized participants as being either high stress/low illness or high stress/high illness. She found that men in the high stress/low illness group tended to have a higher internal locus of control, feel less powerless and alienated from themselves, and approach daily activities with vigor, all important aspects of commitment, control, and challenge. Furthermore, she found that these individuals had a significantly lower perception of personal stress, which is consistent with the view that hardiness serves to transform events as to make them less stressful. Kobasa and her colleagues later replicated these findings in two other samples drawn from the same population (Kobasa, Maddi, & Kahn, 1982; Kobasa, Maddi, & Puccetti, 1982). Furthermore, Dion et al. (1992) found that hardiness buffered the relationship between stress related to discrimination and psychological symptoms in a sample of Chinese adults residing in Canada. However, other research has demonstrated mixed support for this theory as it relates to illness (Funk & Houston, 1987; Rhodewalt & Zone, 1989; Schmied & Lawler, 1986).

Additionally, severe criticism of hardiness research has mounted within the past decade (Funk, 1992; Funk & Houston, 1987; Huang, 1995; Hull, Van Treuren, & Virnelli, 1987). There were three major faults that these reviews recognized in hardiness research. First, this literature is plagued with measurement problems. Hardiness was originally measured with five previously existing scales that serve as negative indicators of commitment, control, and challenge; however, since that time, six hardiness scales
have been developed by various authors. These scales have demonstrated low and
negative intercorrelations among the three dimensions and appear to be confounded by
neuroticism (Funk, 1992). To address this problem, the current study used the most
recent and refined hardiness scale developed by researchers at the Hardiness Institute.
Second, because of the weak intercorrelations among the three dimensions, hardiness
should not be analyzed as a unitary construct, but as three separate dimensions (Funk,
1992, Hull et al., 1987). Thus, in the current study I examined the intercorrelations
among the three constructs before determining whether a composite hardiness score
should be created. Third, inconsistent with the theory, research has demonstrated mixed
support for the buffering effects of hardiness; some studies have only found a main effect
Thus, both effects were tested in the current study. By addressing these concerns, the
current study may shed new light on hardiness as it relates to stress and illness.

John Henryism

The final moderator that was examined in this study is John Henryism. Named
after the Black folk hero John Henry who allegedly died of mental and physical
exhaustion after successfully winning a contest against a mechanical steam drill, this
construct describes a personality predisposition towards actively coping with the
psychosocial stressors in one’s environment persistently and with great effort (James,
1994). James, Hartnett, and Kalsbeek (1983) defined John Henryism as "an individual's
self-perception that he can meet the demands of his environment through hard work and
determination" (p. 263); this construct is conceptualized as being a generally positive
attribute to possess. Although this construct has never been tested in the context of a moderator model, it is conceivable that possessing these characteristics would serve to buffer the effects of the experience of racial discrimination on physical health.

John Henryism and health. This construct has been traditionally tested in the context of a theory that posits that this personality characteristic when combined with few resources necessary for effective coping (e.g., little formal education or low occupational status) is related to higher blood pressures and a higher prevalence of hypertension. Empirical support for the JH hypothesis would be evidenced by a main effect for JH and/or SES as well as an interaction between JH and SES as they relate to blood pressure. More specifically, James and colleagues hypothesized that individuals scoring high on JH and low on indicators of SES (as measured by education) would have a higher prevalence of hypertension than those who scored low on JH and high on SES. Research has yielded mixed support for this construct in samples that tend to have a greater lack of resources. For example, in a rural southern Black sample, JH and SES interacted to predict the prevalence of hypertension (James, Strogatz, Wing, & Ramsey, 1987). However, other studies have provided somewhat weaker support for the hypothesis. James, Keenan, Strogatz, Browning, and Garrett (1992) created six groups based on a 2x3 matrix of JH (low, high) and SES (low, medium, high) scores and found that there was a trend towards individuals scoring high in JH and low in SES having a higher prevalence of hypertension than individuals in any of the other five groups in a large urban Black adult sample (p ≤ .08). Likewise, a study using semi-rural Black men demonstrated that individuals scoring
high in JH and low in SES had diastolic blood pressures that were marginally higher than individuals scoring high in both JH and SES ($p < .10$; James et al., 1983).

Unsurprisingly, the predicted JH/SES interaction was not significant in samples of Black educated adults (Light et al., 1995; Wiist & Flack, 1992). In these two samples, there may not have been as great of a lack of available resources. It is unlikely that individuals of lower SES in these samples are economically equivalent to Southern Blacks in a rural or semi-rural town. Another study with a heterogeneous sample of somewhat younger Black adults also failed to demonstrate the hypothesized interaction (McKetney & Ragland, 1996). The authors attributed these findings to the age of the sample (aged 18-30 as compared to for example, 25-50 in the James et al; 1992 study). Furthermore, the predicted interaction is contingent upon the usual finding of an inverse relationship between education and blood pressure, which McKetney and Ragland (1996) did not find. Taken together, these findings raise questions about the applicability of this hypothesis to better educated samples.

In the current study, I tested the hypothesis that individuals scoring above the median on JH and below the median on SES will have higher blood pressures than those scoring below the median on JH and above the median on SES among urban adults. Additionally, I will test an additional application of John Henryism: as a moderator of the stress-illness relationship. More specifically, I am predicting that scoring high in JH will serve to buffer the stress-illness relationship because these individuals believe that through hard work and determination, they can overcome their experiences of stress, and
it is this type of cognitive appraisal that Lazarus and Folkman (1984) argued may influence the relationship between stress and physical health.

The Model

The literature presented thus far strongly converges on a moderator model positing that the experience of racial discrimination is associated with physical health in general, and blood pressure more specifically; and this relationship is moderated by social support, hardiness, and JH (see Appendix A). According to this model, social support, hardiness, and JH interact with stress by specifying the conditions under which the experience of racial discrimination is associated with health outcomes. Thus, racist experiences are hypothesized to correlate positively with blood pressure if social support is low because for these individuals there is a lack of available resources from others that may help them appraise a situation as less stressful or facilitate healthy behaviors that may reduce the impact of the stressor (House, 1981). Secondly, racist experiences are hypothesized to correlate positively with blood pressure if an individual is not characterized as having a hardy personality. Having a hardy personality increases the likelihood that one engages in transformational coping, which is most effective in buffering the effects of stress because it involves altering one's perceptions such that events seem less stressful (Maddi & Kobasa, 1984). Third, the model predicts a positive relationship between racist experiences and blood pressure if an individual does not score high in John Henryism regardless of SES. This is because individuals who carry out this form of active coping may be able to bring out changes in the situations in which they are
being treated unfairly and therefore reduce the negative impact that racist experiences may have on their blood pressure.

In summary, I have presented research demonstrating that stress is related to physical health outcomes. Because of the pervasiveness of racial discrimination in American society, I am arguing that the resultant stress may be associated with the prevalence of EH among African Americans. The existing research addressing the relationship between discrimination and blood pressure is highly contradictory and subject to a variety of interpretations. Therefore, additional research is necessary to clarify the findings as well as to test alternative explanations. Because of the complexity of this relationship, it is necessary to test the effect of three potential moderator variables: social support, hardiness, and John Henryism. Research has demonstrated that these three variables may moderate the relationship between more traditional measures of stress and illness, but little or no research has examined these variables as they may moderate the relationship between stress related to discrimination and blood pressure.

The purpose of the current study is twofold: First, it sought to clarify contradictions in the current research on this topic. To do so, I examined a combined index of racist experiences that includes both the frequency and the appraised stressfulness of respondents’ experiences of discrimination. Also, in order to carry out this first goal, I examined variables that may confound previous research: repression and the tendency to perceive discrimination. Second, this study tested a moderator model that posits that racist experiences are associated with health outcomes, and the nature of this
relationship is based on the presence of the hypothesized moderating variables, social support, hardiness, and John Henryism.

The following hypotheses were tested in the current study: (a) Higher scores on John Henryism and lower scores on socioeconomic status will be associated with higher blood pressures and worse self-rated health. (b) Repression will be positively associated with blood pressure and negatively associated with self-rated health and life satisfaction. (c) A moderate tendency to perceive discrimination will be associated with lower blood pressure and more self-rated health and life satisfaction; higher scores on this construct will be associated with higher scores on Black identity and more time spent thinking about one’s race. (d) Racist experiences will be positively associated with blood pressure and negatively associated with self-rated health. (e) Racist experiences will be associated with higher blood pressures if social support is low, hardiness is low, or John Henryism is low. (f) Racist experiences will be associated with worse self-rated health if social support is low, hardiness is low, or John Henryism is low.
Method

Participants

Participants were solicited from two different settings to participate in a study of "Health and life experiences among Blacks in America". First, parents and family members of children attending a large charter school in the Boston area were invited to participate in the study via a flyer that was sent home with the children (n = 42; see Appendix B). The second setting was an enrichment program for young African American males. Parents were solicited as they delivered their children to and from the program activities, and volunteers and members of the organization that hosted the program were also solicited for participation (n = 73). All respondents were first asked to have their blood pressures taken and then to take home and complete a questionnaire and finally to have their blood pressures taken a second time upon returning the questionnaire. All blood pressures were taken in facilities located at either the school or the enrichment program depending on the location in which the participant was recruited. They were assured that all responses would be anonymous and confidential, and they were offered nominal compensation ($15) for participating in the study or the opportunity to contribute their compensation to the scholarship fund for the young males (only at the second site). Upon completing their participation, respondents were debriefed and thanked.

Demographic information. Participants were 115 normotensive and hypertensive Black adults ranging in age from 20 to 57 years (M = 34.15, SD = 8.60). The sample was 61.7% female (n = 71) and 38.3% male (n = 44). Although all respondents self-identified
as being Black, or of African descent, there was some variability in the ethnicities with which they identified: 79.3% identified as Black or African American, 14.4% as Black/West Indian, and 6.3% as Black/Hispanic, African, or other.

The respondents' highest level of education attained was very high: 83.5% of respondents had completed at least some college. Similarly, occupational status was high based on the Hollingshead prestige rating scale (1975): 68.0% of respondents were classified as having semi-professional or professional positions, and 32.0% held non-professional positions. The 13 students in the sample were omitted from all analyses that involved occupational status.

**Physical characteristics.** Because of the relatively young age of the sample, only 13.9% of the sample had ever been diagnosed with hypertension. Of these 16 respondents, 6 were currently taking anti-hypertensive medication and 10 were not. Concerning the number of family members who were reported to have hypertension, 24.3% of respondents reported not having any family members with hypertension, 52.2% of respondents reported having either 1 or 2 family members with the condition, and 23.4% of respondents reported having between 3 and 6 family members with hypertension.

**Obesity.** Respondents were asked to report their height and weight, and these indices were combined (by dividing weight by the square of height) to form the Quetelet Index of body mass, an index of obesity. Scores on this index ranged from .02 to .08 (M = .04, SD = .01).
Socioeconomic status. Education level and occupational status (Hollingshead, 1975) were moderately intercorrelated, \( r(97) = .43, p \leq .001 \). Thus, I summed the standardized scores for these two variables in order to create an index of socioeconomic status. Scores ranged from –4 to 3. The mean was .01, and the standard deviation was 1.72 for this index.

Self-rated health behavior. Respondents were asked to report on three aspects of their behavior: alcohol consumption, cigarette smoking, and deliberate exercise. Very few respondents smoked (9.9%) and that most respondents either drank alcohol very infrequently (52.2%) or never (28.3%). Fifty percent of respondents reported carrying out some form of deliberate exercise at least once per week. The remaining respondents indicated that they exercised either once in a while (32.1%) or not at all (17.9%).

Procedure

Blood pressure recordings. The author was trained and certified in the auscultatory method of blood pressure determination and used an aneroid sphygmomanometer to take blood pressure readings. Blood pressures were recorded at first (systolic) and fifth (diastolic) phase Korotkoff sounds. The dependent variable in the analyses is the mean of two blood pressure readings that were taken on two occasions. The decision to average the two readings is bolstered by the great variability in blood pressure recordings that occurs over the course of the day (Harshfield, Pickering, James, & Blank, 1990) and the published finding that the first reading is generally higher than the second (Watson et al., 1987).
The amount of time that lapsed between the first and second blood pressure readings ranged from 0 days for 5 participants to 65 days for 1 participant, $M = 11.7$ days (although both the median and mode are 7 days), $SD = 13.6$. Blood pressure readings taken at the first and second readings were positively correlated for systolic blood pressure, $r(107) = .61, p \leq .001$, and diastolic blood pressure, $r(107) = .57, p \leq .001$. On average, systolic pressure decreased by 1.32 mm Hg from the first to the second reading (which was not significantly different from 0), and diastolic pressure decreased by 4.60 mm Hg (which was significantly different from 0, $t(107) = 4.46, p \leq .01$). The mean absolute change in blood pressure across the two readings was 7.45 mm Hg for systolic blood pressure and 9.16 mm Hg for diastolic blood pressure. Across both readings, the average systolic and diastolic blood pressure readings were 120.84 ($SD = 10.11$) and 75.91 ($SD = 10.04$) mm Hg, respectively. Between the two blood pressure recordings, respondents completed a questionnaire that included the following measures.

Measures

Perception of discrimination scenarios (developed by author). To measure respondents' readiness to perceive discrimination in situations in which they have been treated unfairly, 30 brief scenarios that describe encounters between an African American and a White individual were administered to a pretesting sample who rated the likelihood that racial discrimination occurred in the interaction. Ideas for these scenarios were taken from three interview studies in which African Americans were asked to report their experiences of discrimination (Cose, 1993; Feagin & Sikes, 1994; Thompson, 1996). Using a table of random numbers, Black faculty and staff from a large private university
were randomly selected to participate in this phase of the study. These potential participants received a letter inviting them to participate in a study on "Perceptions of social interactions" and a brief questionnaire (see Appendix C). Of these potential participants, 29 returned questionnaires, which resulted in a response rate of 36%. Of these 29 participants, 15 were female and 13 were male (one respondent did not report his/her gender). Respondents ranged in age from 27 to 61 years ($M = 43.24, SD = 8.64$), and the sample was very well educated: 93% of the respondents had completed at least some college work. In return for their participation, respondents were entered into a drawing for $100.

Participants were asked to imagine that they were the African American individuals in the scenarios, which were 2-3 sentences long. In each scenario, characters were subjected to what could be interpreted as unfair treatment, and the respondents were asked to rate on a 7-point scale the extent to which the unfair treatment was motivated by racial discrimination ranging from not at all likely (1) to extremely likely (7). A sample vignette is "At your place of employment, African Americans are separated from each other, one in each corner of the room. Your employer feels that fewer interactions with other African Americans will make you a more productive worker". The purpose of pretesting this measure was to generate a set of scenarios that would produce the greatest amount of variability in the responses elicited. Thus, for the next phase of the study I was able to differentiate respondents who readily perceive discrimination (those who score high on this measure) from those who do not (those who score low on this measures).
For the final measure I selected the 15 items with the largest standard deviations (see Appendix D). For these items, standard deviations ranged from 1.64 to 2.28; for the 15 omitted items, standard deviations ranged from .92 to 1.62. An acceptable level of internal consistency was achieved for the 15 items that comprised the final scale (alpha = .77). The possible range of scores was 15 to 105; the actual range was 45 to 103. The mean for the final scale was 63.00, and the standard deviation was 14.21. The properties of this scale based on the present sample are somewhat similar to those of the scale based on the sample in which it was first tested, the pretesting sample; internal consistency was acceptable once again (alpha = .83). As before, the possible range of scores was from 15 to 105. However, the actual range, the mean, and the standard deviation were slightly higher than before: In the present sample, scores ranged from 16 to 105, \( M = 65.13, \text{SD} = 15.65 \).

Schedule of Racist Events (SRE; Landrine & Klonoff, 1996b). The SRE was designed to tap the culturally specific stressors that occur in the lives of African Americans. These stressors may occur frequently or infrequently and be acute (recent) or chronic (lifetime). This measure utilizes two ways of measuring stress: the frequency of stressful events and the appraisal of events as stressful. The original measure consists of 17 items that are completed three times on a 6-point scale: once for the frequency within the past year, once for the frequency over an individual's entire life, and once for how stressful the event was. Several sample items are “How many times have you been treated unfairly by your employers, bosses, and supervisors because you are Black?” and “How many times were you forced to take drastic steps (such as filing a grievance, filing
a lawsuit, quitting your job, moving away and other actions) to deal with some racist thing that was done to you?". However, in the current study I slightly modified this measure such that for the 17 items, respondents were instead asked to report to what extent in the past 5 years they had experienced unfair treatment from that source (e.g., teachers and professors) and how stressful the event was. This time period was selected because it captures both the recency and longevity in the two original items that were originally used (experiences within the last year and experiences over one’s entire lifetime).

In a study of 153 African Americans between the ages of 15 and 70, Cronbach's alpha for recent racist events, lifetime racist events, and appraised racist events was .95, .95, and .94, respectively. Split-half reliability for these three subscales was .93, .91, and .92, respectively (Landrine & Klonoff, 1996b). In testing the validity of the scale, those authors found that the SRE is positively associated with the Hopkins Symptom Checklist (symptoms include depression and anxiety) and smoking, a behavior that is presumed to be related to stress (see Appendix E).

In the current study, the appraisal subscale was coded on a scale of 0 to 6, and frequency was coded on a scale ranging from 0 to 5. For each of the 17 items, appraisal was multiplied by frequency, and I computed a total score by summing across all items. This procedure yielded a "racist experiences" score that could range from 0 to 510. This transformation was made in order to be able to capture both aspects of racial discrimination in only one variable. Moreover, appraisal and frequency were highly intercorrelated, r(94) = .83, p ≤ .001, so interpreting each variable independently of the
other was not very meaningful. The actual range was from 6 to 386 ($M = 98.12, SD = 81.77$). The 17 variables that resulted from multiplying appraisal by frequency for each of the 17 items proved to be internally consistent ($\alpha = .91$).

Revised Hassles Scale (HS-R; DeLongis, Folkman, & Lazarus, 1988). The original Daily Hassles Scale (Kanner et al., 1981) was designed to tap the “irritating, frustrating, distressing demands that to some degree characterize everyday transactions with the environment” (p. 3). However, critics of this scale argued that this scale confounded psychological and somatic distress, and that items indicating psychological and somatic symptoms should be eliminated (Dohrenwend, Dohrenwend, Dodson, & Shrout, 1984; Dohrenwend & Shrout, 1985). Therefore, the revised scale was developed to address these problems, as well as other problems related to the rating scale that was used in the original scale. The revised scale contains 53 items, and respondents are asked to indicate the extent to which each item was a hassle for that day. Sample items are “Your children”, “Fellow workers”, “Your job security”, and response options are none or not at all a hassle, somewhat of a hassle, quite a bit of a hassle, and a great hassle (see Appendix F).

The HS-R was initially used with the diary methodology whereby respondents were asked to complete the scale at the end of each day for several days. However, for the current study, the instructions were modified such that respondents were asked to indicate their experience with the indicated hassles over the past month. Research has found the HS-R to be related to health problems (such as flu, sore throat, headaches, and backaches; DeLongis et al., 1988; Fernandez & Sheffield, 1995), psychopathology
(Johnson, 1992; Johnson & Bornstein, 1993), and blood glucose levels (Aikens, Wallander, Bell, & McNorton, 1994). In the current study, this scale achieved an acceptable level of internal consistency (alpha = .93). Although scores were free to range from 0 to 159, the actual range was from 4 to 96 (M = 40.18, SD = 22.57).

**Race-consciousness item (Jones, 1995).** This item was developed by Jones to measure how conscious respondents are about their race. The single item reads, "How often do you think about your race?" and respondents were given 8 options ranging from never (1) to once a day to constantly (8). In the present study, 17.6% of respondents reported thinking about their race once a month or less, 36.3% indicated either once a week or once a day, and 46.1% indicated that they think about their race once a minute or constantly.

**Black identity subscale-modified (Arriola & Cole, 1998).** This is a modified subscale from the Black Identity and Situational Comfort Scale, which was developed to measure attitudes of Black Americans towards their minority group. This dimension of the scale consists of five elements that are not mutually exclusive: (a) a sense of common fate or connection with other African Americans, (b) a preference for a group's culture that may reflect or imply a feeling of connection or relatedness to the group, including shared history, (c) consciousness of discrimination, or a feeling that because racism and discrimination have existed and continue to exist, any interaction with out-group members may potentially involve an encounter with negative racial attitudes, (d) a desire to enhance the Black community, and (e) centrality of Black identity to individuals' larger personal identities.
This subscale consists of 26 items; however, for the purpose of the current study, only the ten items that loaded highest on the Black identity factor in a previously conducted factor analysis (Arriola & Cole, 1998) were used. Respondents were asked to rate agreement with these items on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). Sample items are "I take a lot of pride in Black historical accomplishments", "I spend time working in organizations that address Black people's concerns", and a reverse scored item that reads "My race is not that important to who I am; we're all human." In samples of 216 and 83 Black college students, the internal consistency of the 26-item subscale was demonstrated to be .89 and .90, respectively; in the present study it was .80. Finally, the authors demonstrated construct validity in that this subscale is related to other previously established measures of similar constructs, as well as certain aspects of Black social, cultural, and political life (see Appendix G). The possible range of scores in the current study was from 10 to 50; the actual range was from 21 to 50 (M = 42.25, SD = 6.26).

Denial of distress (Weinberger, 1990). This subscale of the Weinberger Adjustment Inventory in addition to the Repressive defensiveness subscale make up the "Defensiveness" factor of the 3-factor Weinberger Adjustment Inventory (the other two factors are Self-Restrain and Distress). Denial of distress refers to the tendency to deny the experience of negative affect. A reverse coded sample item is "I can think of times when I did not feel very good about myself", and response options ranged from 1 (false) to 5 (true). This 11-item subscale has demonstrated fairly good internal consistency, and Cronbach's alpha ranges from .72-.75 (Turvey & Salovey, 1994). In a sample of 135
introductory psychology students it was found to be moderately correlated with other measures of repression such as the Repression-Sensitization scale, the index of Repressive Coping Scale, and the Self-deception subscale of the Balanced Inventory of Desired Responding (Turvey & Salovey, 1994; see Appendix H). In the present study, scores were free to range from 11 to 55. The actual range was from 13 to 48 (M = 27.42, SD = 7.86), and alpha = .78.

**Index of Social Support (Dressler, 1991).** As suggested by Dressler (1994; 1991) I used a measure of social support that reflects the cultural and social structural norms that are characteristic of African American culture. Taken from Dressler (1991), this technique involved asking respondents a series of hypothetical questions concerning to whom they would turn if faced with one of eight commonly experienced problems: discrimination, job problems, parental problems, parenting problems, marital problems, financial problems, health problems, and personal problems. For each life problem, respondents were asked whether they would turn to: no one, a family member, a relative, a friend or neighbor, a pastor or church member, a coworker, a health professional, or other.

Dressler (1991) used a multidimensional scaling technique to classify family and relative as kin, and friend, coworker, church member, and health professional as non-kin. From this information I was able to create an index of total support as well as a kin vs. non-kin index of the source of that support (see Appendix I). An acceptable level of internal consistency was achieved for total social support, kin, and non-kin social support, alpha = .76, .83, and .72, respectively. For total social support scores could range from 0
to 56; the actual range was from 0 to 26, $M = 10.65, SD = 5.43$. For kin social support
the possible range of scores was from 0 to 16, and the actual range was from 0 to 15, $M = 5.19, SD = 3.50$. Finally, for non-kin social support the possible range of scores was from 0 to 40 though the actual range was from 0 to 16, $M = 5.46, SD = 3.59$.

**Personal Views Survey II (PVSII; Maddi, 1997).** The measurement of hardiness has undergone substantial refinement over the past 15 years. Because of the many measurement problems associated with these scales, I have used the newest and most recently developed 50-item measure of hardiness, the PVSII, which was developed to address the shortcomings of previous measures. This scale is composed of three subscales that tap the three Cs: commitment, control, and challenge; these subscales have been demonstrated to have reasonable internal consistency with alpha's ranging from .70 to .75 for commitment, .61 to .84 for control, .60 to .71 for challenge, and .80 to .88 for total hardiness across several studies (Maddi, 1997). Factor analytic procedures have confirmed the existence of the three theorized components (Bartone, Ursano, Wright & Ingraham, 1989), and additional research has found these components to be positively intercorrelated (Maddi & Khoshaba, 1994). Sample items are "I really look forward to my work" for commitment, "What happens to me tomorrow depends on what I do today" for control, and "It's exciting to learn something about myself" for challenge. For this measure as well as for the next measure response options ranged from 1 (false) to 5 (true; see Appendix J). Thus, scores could range from 50 to 250; the actual range was from 136 to 230 ($M = 181.67; SD = 19.48$). For the current study alpha = .85.
John Henryism Scale for Active Coping -12 (James, 1994). This 12-item scale reflects three themes that are inherent in the construct of John Henryism (James, 1994): (a) unrelenting mental and physical vigor, (b) commitment to hard work, and (c) strong determination to succeed. Sample items are "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", and "Hard work has really helped me get ahead in life". Response options were given on a 5-point scale and range from "completely false" to "completely true". The scale has been demonstrated to be reasonably reliable (Cronbach's alpha = .72) in a sample of 820 adults between the ages of 21 and 50 years (James et al., 1987; see Appendix K); in the current sample, reliability was somewhat higher (alpha = .78). The possible range of scores was from 12 to 60, and the actual range was from 28 to 60 (M = 47.72, SD = 6.80).

Self-reported health (Mossey & Shapiro, 1982). Self-reported health is a widely accepted index of health status and has been found to be associated with objective health measures such as mortality (see Williams et al., 1997). This one-item index simply asked the respondent to indicate, "Overall, how would you rate your physical health?" using the following response options: 1 = poor, 2 = fair, 3 = good, 4 = very good, or 5 = excellent. Thus, higher scores were indicative of better health. In the current study, 35.4% of respondents rated their health as excellent or very good, 42.5% as good, and 22.1% as fair or poor.

Life satisfaction (Campbell, Converse, & Rodgers, 1976). This two-item measure was designed to capture the respondent's perception of his or her overall quality of life.
The first item, "Overall, how satisfied are you with your life?" includes five response options: completely satisfied, somewhat satisfied, neutral, somewhat dissatisfied, completely dissatisfied. The second item, "My life is full of joy and satisfaction" is given on a five point scale ranging from agree to disagree. Cronbach's alpha for these two items was .79. The combination of these two items yielded both a possible and actual range of scores from 2 to 10 ($M = 6.70$, $SD = 1.71$).
Results

I began by carrying out a series of preliminary analyses exploring the correlates of blood pressure fluctuation, gender differences, the repression hypothesis, and the John Henryism hypothesis. Next, I examined the relationship between racist experiences and health outcomes (which include blood pressure and self-rated health) as well as two potential moderating variables, repression and readiness to perceive discrimination. Finally, I used multiple regression analyses to test a moderator model hypothesizing that social support, hardiness, and John Henryism moderate the relationship between racist experiences and health outcomes.

Blood Pressure Fluctuation

I first explored the correlates of having a higher blood pressure at the second reading than at the first. This exploratory procedure was necessary in order to determine whether completing the questionnaire between the first and second readings contributed to an individual having higher readings at the second encounter. Specifically, I was interested in whether having a higher blood pressure at the second reading was associated with higher scores on the measures that tapped racially sensitive topics. Results indicated that increases in both SBP and DBP were unrelated to all of the measures that were tested: racist experiences, Black identity, readiness to perceive discrimination, and time spent thinking about one’s race (all ps > .10).

Next, I explored the correlates of the absolute changes in blood pressure across the two readings to better understand the relationships between responses to racially sensitive items and an individual’s blood pressure variability more generally, and a
different picture emerged. Change in SBP was unrelated to the four measures described above (all ps > .10), but DBP change was associated with two of the four measures: racist experiences, \( r(87) = -.30, p \leq .01 \), and readiness to perceive discrimination, \( r(105) = -.27, p \leq .01 \). Thus, respondents with more variable diastolic blood pressures across the two readings reported experiencing fewer racist experiences and had less of a tendency to perceive discrimination. Change in DBP was unrelated to both Black identity and time spent thinking about one’s race (both ps > .10).

**Gender Differences**

In order to understand whether men and women differed in the variables of interest I first performed independent samples t-tests on all of the variables that will be reported below. Results indicated differences on three variables: Men (\( M = 29.72, SD = 8.01 \)) scored significantly higher than women (\( M = 25.99, SD = 7.47 \)) on repression, \( t(110) = 2.50, p \leq .01 \). Women (\( M = 6.11, SD = 3.43 \)) scored significantly higher than men (\( M = 4.41, SD = 3.63 \)) on non-kin social support, \( t(113) = 2.53, p \leq .01 \). The mean SBP of men (\( M = 124.79, SD = 9.19 \)) was significantly higher than that of women (\( M = 118.25, SD = 9.06 \)), \( t(105) = 3.59, p \leq .001 \). Thus, gender will be used as a covariate when repression and non-kin social support are used as independent variables in regression analyses.

Next, I examined the intercorrelations among racist experiences, moderating variables (repression, perception of discrimination, social support, hardiness, and John Henryism), and dependent variables (SBP, DBP, and self-rated health) separately by gender. These results indicated that the strength and direction of these relationships
varied somewhat between men and women. However, only one consistent pattern emerged: For men, social support was more strongly correlated with other variables than for women (see Table 1). Given that there were no significant gender differences in the relationships among the variables of primary interest, for the remaining analyses I collapsed across gender except where otherwise noted.

John Henryism Hypothesis

The first hypothesis predicted that higher scores on John Henryism accompanied by lower scores on indices of socio-economic status would be associated with higher blood pressures. However, this hypothesis is based on the initial assumption that socio-economic status is inversely related to blood pressure. My test of this assumption yielded null results. SES was unrelated to SBP, $r(89) = .06$, DBP, $r(89) = .09$, and self-rated health, $r(97) = -.06$ (all $p$'s > .10). Nevertheless, I pursued the John Henryism hypothesis despite a lack of initial support. In prior research on this topic authors have performed either median splits or 3-way splits on both the John Henryism measure and the SES index and used ANOVA to analyze the data. I have opted to use the same method, so I performed a median split on both John Henryism and SES to create a dichotomous variable that identifies respondents as being either high or low on each variable in order to test the main effects of JH and SES, as well as their interaction terms. I found a marginally significant main effect for John Henryism and a marginally significant
interaction between JH and SES, but only for self-rated health (see Table 2). Next, I performed post-hoc analyses to interpret this trend after setting alpha at .02 based on the Bonferroni adjustment, and all of the group comparisons failed to reach significance. However, individuals who scored high in JH and low in SES \( (n = 23, \ M = 3.43, \ SD = 1.21) \) rated their health as marginally higher than those who scored low in JH and low in SES \( (n = 26, \ M = 2.77, \ SD = .99), \ t(47) = 2.20, \ p = .03. \) Thus, this trend runs counter to the hypothesis in that scoring high in JH and having low SES was associated with better health, not worse.

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Insert Table 2 about here
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Repression Hypothesis

The second hypothesis predicted that repression would be negatively associated with life satisfaction and self-rated health and positively associated with blood pressure; but this hypothesis received only partial support. Counter to prediction, repression was found to be positively associated with life satisfaction. Additional analyses revealed that repression was also positively associated with John Henryism and negatively associated with daily hassles. Moreover, repression was unrelated to both racist experiences and hardiness. Also counter to prediction, repression was found to be positively related to self-rated health. However, it was indeed the case that repression was positively associated with both SBP and DBP, although the relationship with SBP was only marginally significant (see Table 3).
Perceptions of Discrimination

The third hypothesis predicted that a moderate readiness to perceive discrimination would be associated with lower blood pressures and higher self-rated health and life satisfaction. Moreover, I also predicted that perception of discrimination would be associated with higher Black identity scores and more time spent thinking about one's race. Results failed to support the first part of this hypothesis, but modestly supported the second part. I trichotomized perception of discrimination scores in order to classify respondents as being either low, moderate, or high on this construct. I then performed one-way ANOVAs with SBP, DBP, and self-rated health as the dependent variables and failed to find any significant differences among the three groups (all ps > .10). However, readiness to perceive discrimination was marginally associated with Black identity, r(111) = .16, p = .10, and time spent thinking about one's race, r(101) = .19, p = .06.

Racist Experiences and Health Outcomes

Before exploring the relationship between racist experiences and health outcomes I examined the psychological correlates of racist experiences. These analyses revealed that racist experiences were positively associated with an individual's tendency to perceive discrimination, the amount of time that an individual spends thinking about his or her race, Black identity, and daily hassles (see Table 4).
The next series of analyses tested the relationship between racist experiences and health outcomes as well as variables that are thought to moderate this relationship. I started by exploring the relationships between racially sensitive measures and health outcomes. I found that Black identity was marginally related to SBP but was unrelated to DBP and self-rated health. However, time spent thinking about one's race was unrelated to SBP, DBP, or self-rated health. Moreover, the simple correlation between racist experiences and physical health indicates that no relationship existed for SBP or self-rated health; yet a significant positive relationship existed between racist experiences and DBP (see Table 5).

In order to determine whether demographic variables were confounding these relationships, I correlated racist experiences with all of the demographic variables (obesity, SES, age, gender, alcohol and cigarette consumption, exercise, hypertension status, family members with hypertension), and only two significant relationships emerged: Racist experiences were positively correlated with obesity, \( r(92) = .20, p \leq .05 \), and the number of family members with hypertension, \( r(94) = .21, p \leq .05 \). Importantly,
even after controlling for these two variables, the positive relationship between racist experiences and DBP persisted (see Table 6).

Additional analyses were carried out to determine whether racist experiences were related to blood pressure by virtue of the interaction with moderating variables. I first tested the possibility that repression and perception of discrimination would serve as moderators. Next I tested a theory based moderator model that posits that social support, hardiness, and John Henryism moderate this relationship.

Using multiple regression techniques, I tested the possibility that repression moderated the relationship between racist experiences and health outcomes and found null results: There was a main effect for both racist experiences and repression on DBP and a marginally significant main effect for repression on self-rated health. Interactions were nonsignificant for all three health outcome measures (see Table 7). In other words, higher diastolic blood pressures were associated with both more racist experiences and higher repression scores.

I performed a similar set of analyses testing the tendency to perceive discrimination as a moderator; only a main effect for racist experiences on DBP emerged
(see Table 8). In sum, these data failed to support the contention that either repression or perceptions of discrimination moderate the relationship between racist experiences and health outcomes.

Model Testing of Racist Experiences and Health Outcomes

Social support. I performed preliminary analyses separately for each of the three types of social support, total, kin, and non-kin. For each type of social support, I started by exploring its relationship with age in order to explore the possibility that different generations rely on different forms of social support (Dressler, 1991). Next, I tested age as a moderator of the relationship between social support and health outcomes for each of the three types of social support. Finally, I tested social support as a moderator of the relationship between racist experiences and health outcomes for each of the three types of social support, and all of the results were similar. Therefore, for these analyses I present only the findings for total social support.

There were significant positive relationships between total social support and age, \( r(113) = .19, p \leq .05 \), and between kin social support and age, \( r(113) = .23, p \leq .05 \). Non-kin social support bore no relationship to age, \( r(113) = .07, p > .10 \). Next, I tested the possibility that age moderates the relationship between each type of social support and health outcomes. Concerning total social support, results indicated significant main
effects for age on SBP and DBP and a significant interaction between social support and age for DBP (see Table 9).

Based on the recommendations of Baron and Kenny (1986), I performed a median split on social support and correlated age with DBP separately for individuals in the higher and lower social support groups. This procedure revealed that age was moderately correlated with DBP among individuals who reported less social support, \( r(52) = .48, p \leq .001 \), but among individuals who reported more social support, the relationship between age and DBP was not as strong, \( r(54) = .31, p \leq .05 \). Thus, having more of a social support system appears to weaken the relationship between age and DBP.

I found strikingly similar results when performing this same set of analyses on kin social support. There was a marginally significant main effect for age on SBP, and as before, there was a main effect for age and a significant interaction between kin social support and age on DBP (see Table 10).

Further analyses regarding the nature of this interaction yielded a similar pattern as before. Among individuals who reported less kin social support, age was moderately related to DBP, \( r(49) = .50, p \leq .001 \), but among individuals who reported having more
kin social support, the relationship between age and DBP was weaker, $r(57) = .28$, $p \leq .05$. A test of non-kin social support as a moderator of the relationship age and health outcomes revealed null results. As before, there were main effects for age on SBP and DBP, but all interactions were insignificant (see Table 11).

Insert Table 11 about here

Given the differential relationships that existed for total social support and DBP for the younger and older respondents, I tested the moderator model with DBP as the dependent variable separately for each age group. For this set of analyses, I tested racist experiences and social support as main effects as well as the interaction between the two variables. These analyses revealed an interaction between racist experiences and social support among the younger respondents and only a positive main effect for racist experiences among the older respondents (see Table 12).

Insert Table 12 about here

Again, in order to interpret the interaction between racist experiences and social support among the younger respondents I correlated racist experiences with DBP at each of two levels of social support within this subsample based on a median split. I found that among younger respondents who scored below the median on total social support, racist experiences were positively associated with DBP, $r(23) = .18$, $p > .10$, but among
younger respondents who scored above the median on total social support, this relationship was weaker, $r(20) = .08, p > .10$. At least among younger respondents, these data support the contention that social support is able to buffer the effect of racist experiences.

For SBP and self-rated health, I tested total social support as a moderating variable in the entire sample (since there was no significant interaction with age based on these dependent variables) and found null results (see Table 13).

| Insert Table 13 about here |

| Hardiness. Next, I tested hardiness as a potential moderator of the relationship between racist experiences and health outcomes. Results indicated a main effect of racist experiences on DBP, a main effect of hardiness on self-rated health, and a marginally significant interaction between racist experiences and hardiness, for DBP only (see Table 14). Further analysis of this interaction revealed that among individuals who scored below the median on hardiness, racist experiences were positively associated with DBP, $r(40) = .26, p > .10$. Among those scoring above the median on hardiness, the correlation between racist experiences and DBP was virtually the same, $r(45) = .25, p = .10$. |

| Insert Table 14 about here |
Since the median split of hardiness failed to explain the interaction between racist experiences and hardiness on DBP, I performed a trichotomization of hardiness to better understand this relationship. First, I divided the range of hardiness scores by thirds, classifying respondents as low, medium or high on hardiness. Next, I correlated racist experiences with DBP separately for each group as had been done before. The results were as follows: low hardiness, \( r(26) = .24, p > .10 \); medium hardiness, \( r(29) = .09, p > .10 \); high hardiness, \( r(31) = .36, p \leq .05 \). Thus, among individuals who were highest on hardiness, there was a stronger relationship between racist experiences and DBP than among those who scored low or medium on hardiness.

**John Henryism.** Finally, I tested the interaction between racist experiences and John Henryism. Results indicated a significant main effect for racist experiences on DBP, and both a main effect and interaction between racist experiences and John Henryism on self-rated health (see Table 15). As before, I interpreted this interaction by performing a median split on John Henryism and correlating racist experiences with health separately by levels of John Henryism. This procedure revealed that among individuals who scored low on John Henryism, racist experiences were associated with worse self-rated health, \( r(40) = -.17, p > .10 \); however, among individuals who scored high on John Henryism, racist experiences were associated with better self-rated health, \( r(52) = .18, p > .10 \). These data indicate that health is the worst when people who are low in JH experience racial discrimination.

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Insert Table 15 about here
Discussion

The primary goal of this study was to determine the nature of the relationship between racist experiences and blood pressure. Importantly, I found that people who reported more racist experiences had higher DBP, even after controlling for demographic variables. The hypotheses concerning the moderator model received partial support. It was indeed the case that among younger individuals who lacked social support networks, racist experiences were associated with higher diastolic blood pressures. For younger participants who had more social support, racist experiences were virtually unrelated to DBP. Social support did not moderate the relationship between racist experiences and health among older respondents.

The hypothesized relationship concerning hardiness failed to receive support in these data. Furthermore, the opposite of the hypothesized effect occurred: Among individuals who scored high on hardiness, racist experiences were more strongly associated with DBP than among those who scored low or medium on hardiness. Finally, a test of John Henryism as a moderator of this relationship also revealed modest support in that the moderating function only served when self-rated health was the dependent variable. Furthermore, the relationship was in the predicted direction: Among those who scored low on John Henryism, more racist experiences were associated with worse health, and surprisingly among those who scored high on John Henryism, racist experiences were associated with somewhat better health.

Blood pressure fluctuation. An interesting finding emerged concerning the psychosocial correlates of blood pressure variability. Recall that greater absolute change
in DBP at the second reading was associated with fewer reports of racist experiences and less of a tendency to perceive discrimination. The literature is very clear on the fact that there is great variability in blood pressures recorded on different occasions and that this is a characteristic that varies individually (Armitage & Rose, 1966; Bevan, Honour, & Stott, 1969; Clark et al., 1987; Harshfield et al., 1990; Kaplan, 1994). For example Armitage and Rose (1966) found DBP to range as much as 30 mm HG within a given participant. This variability may be due to a variety of factors that operate both within the respondent (e.g., level of activity, environmental stresses, smoking, ingestion of caffeine or alcohol) and within the observer (e.g., inappropriate equipment, inaccurate reading; Harshfield et al., 1990).

Given that blood pressure varies considerably in general, one may ask what it means for DBP fluctuation in the current study to relate to racist experiences and a greater tendency to perceive discrimination. Research conducted by Schwartz, Weinberger, and Singer (1981) sheds light on this question by suggesting that there is differentiation in how SBP and DBP change in response to emotion. Their study found that the increase in DBP due to experimentally induced anger was significantly greater than for happiness, sadness, or fear, whereas changes in SBP were equally associated with each of the three emotions. Thus, the findings of Schwartz et al. suggest that state anger may serve as a main effect on change in DBP, but not in SBP.

I would argue that anger may also serve a buffering function among the relationships between racist experiences, perceptions of discrimination, and change in DBP. In other words, it may be that the relationships between racist experiences and
perceptions of discrimination and change in DBP are more clearly understood given an individual’s level of state and/or trait anger. Thus, the current findings may be uninterpretable without additional data on an individual’s anger level and common mode of expression. Additional research should certainly address this issue.

**The John Henryism hypothesis.** A test of the John Henryism hypothesis, which posits that scoring high in John Henryism and low in SES would be associated with higher blood pressures, received no support. Moreover, the expected inverse relationship between SES and health failed to receive support. However, the insignificant relationship between SES and health is similar to the findings of James et al. (1987) and McKetney and Ragland (1996) in that these authors also did not find the hypothesized inverse relationship between blood pressure and SES (as measured by education) in their samples. Moreover, the literature is inconclusive concerning this issue. Many studies have found negative relationships between SES and blood pressure (or hypertension status; e.g., Bucher & Ragland, 1995; Luepker et al., 1993; Winkleby, Jatulis, Frank, & Fortmann, 1992), but some have found no relationship (e.g., Gaillard, Schuster, Bossetti, Green, & Osei, 1997; James et al., 1987; McKetney & Ragland, 1996). These mixed findings concerning the nature of this relationship are likely to be due to inconsistencies in the manner in which SES is operationalized and measured. This is a very difficult construct to measure, and if the effects are small (as are most effects concerning psychosocial variables and specific physical health outcomes), an abundance of measurement error could mask the “true” relationship. There is indeed a need for more
refined measures of SES that tap its dynamic multidimensional properties (Williams & Collins, 1995). The lack of support for the hypothesis that the interaction between JH and SES would be associated with blood pressure may also be attributed to the characteristics of the sample. In the two studies that found support for this hypothesis (James et al., 1983; James et al., 1987), respondents resided in relatively poor urban areas, and the level of education for these samples was generally low. For example, in the James et al. (1983) study, 87% of the sample had completed 12 years of formal education or less. However, in the current study, 84% of respondents had completed at least some college. Similarly, other studies based on economically diverse samples failed to demonstrate support for the hypothesized relationship between JH, SES, and blood pressure (Light et al., 1995; Wiist & Flack, 1992). In combination with previous research, the current study supports the contention that the John Henryism hypothesis may be applicable only to samples in which educational attainment tends to be low.

Repulsion. The repression hypothesis received partial support: As predicted, repression was associated with higher diastolic blood pressures, but counter to prediction, it was also associated with higher scores on indices of mental health. At first glance, these findings paint a mixed portrait of repressors. However, the mental health indices as well as the self-rated health item have in common one characteristic that blood pressure recordings do not have: They are based on self-report. This is particularly important given the defining features of the construct of repression. In this light, it is not surprising that people who tend to deny experiencing negative affect would also report having more
life satisfaction, more active coping skills, fewer daily hassles, and more general health. These findings suggest that researchers should exercise caution when interpreting self-report data.

This study replicated King et al. (1990) in the finding that repression was positively associated with blood pressure despite the somewhat different operationalization of repression across the two studies. In a similar vein, suppressed anger has been found to be associated with higher blood pressures and a higher prevalence of hypertension among both adolescents and adults (Gentry, Chesney, Gary, Hall, & Harburg, 1982; Harburg et al., 1973; Johnson, Spielberger, Worden, & Jacobs, 1987; Johnson, Schork, & Spielberger, 1987; Schneider, Egan, Johnson, Drobney, & Julius, 1986). Alexander (1939) theorized that turning anger inward is associated with feelings of guilt and depression. In a like manner, repression may be associated with a greater experience of negative affect (such as depression), which may decrease the extent to which an individual engages in health promoting behaviors resulting in worse overall health. However, this argument is purely speculative and additional research investigating moderators of the relationship between repression and health is in order.

**Perceptions of discrimination.** The findings concerning the tendency to perceive discrimination failed to support the hypothesis that a moderate level of this construct would be associated with better health outcomes. Additional analyses also failed to indicate a linear relationship between these variables as well. There are at least two competing interpretations of these findings, and they will each be considered in turn.
First, it may be that the measure of readiness to perceive discrimination that was developed during pretesting lacked construct validity. Perhaps this measure was too subtle to tap the construct of interest. However, the data support the validity of the measure in that higher scores on readiness to perceive discrimination were associated with higher Black identity scores and more race consciousness. Furthermore, people who more readily perceived discrimination also reported experiencing more racial discrimination in their lives. These findings support Gary’s (1995) socio-cultural analysis, which also demonstrated a positive relationship between perceptions of personal racial discrimination and race consciousness. These data also bolster Keefe’s (1992) argument that both race consciousness and the ability to perceive racial discrimination are important aspects of ethnic identity.

The data more strongly converge on the second interpretation. In the current study, readiness to perceive discrimination was operationalized as a general personality predisposition and was found to be unrelated to health. However, for each instance in which an individual is treated unfairly, there are also situational characteristics that are in operation as well. It may be that the importance of the situation far outweighs that of the individual’s personality characteristics that are brought to the situation. Situations of unfair treatment may vary, for example, in whether the ultimate outcome is positive or negative, how much personal control the individual perceives, how debilitating the unfair treatment is, and many other characteristics. Clearly, further research using other indices of readiness to perceive discrimination is necessary before any conclusions may be drawn.
Racist experiences and health. Perhaps the most important finding of the current study was that more racist experiences were associated with higher blood pressures. The directionality of this relationship is consistent with traditional theories of stress (e.g., Holmes & Rahe, 1967, Rahe et al., 1970) and fails to support the application of Crocker and Major's (1989) theory to physical health. Their theory argued that being able to attribute unfair treatment to discrimination may serve a self-protecting function for mental health, but the present data suggest that if this theory is valid, these self-protecting properties do not also apply to physical health outcomes.

These data also support the findings of both Landrine and Klonoff (1996a) and Dressler (1991) who have found positive relationships between racist experiences and hypertension status and SBP, respectively. It is still unclear why in two studies, Krieger and her colleagues found evidence for an inverse relationship between these variables. The current data suggest that the construct of repression may have confounded those data and influenced the results to some extent, though there is no plausible explanation for why repressors would be over-represented in either the Krieger (1990) study or the Krieger and Sidney (1996) study. Furthermore, their use of frequency of racist experiences is insensitive to individual differences in coping ability. The current study improved upon this shortcoming by incorporating both frequency and appraised stressfulness in the index of racist experiences. The current study also improved upon previous research on this topic by testing potential moderators of the relationship between racist experiences and blood pressure.
Social support. Dressler (1991) argued that individuals of different ages utilize different types of social support and that these different types of social support serve different functions across generational status. Indeed, he hypothesized, but did not find that older respondents would rely more heavily on kin support and that younger respondents would rely more heavily on non-kin support. However, my findings support the former contention. It may be that the extended family developed as a social system more readily for older respondents because the social conditions during which they were born and raised (before the mid 1960's) imposed such harsh conditions upon Blacks. These apartheid-like conditions may have made relying on extended family a necessity for survival (Dressler, 1991). However, among younger generations, who have experienced less marginality in society, kin support appears to be less salient.

Given the somewhat differential use of types of social support among older and younger respondents, it is not surprising that the meaning of social support for older and younger respondents is different. Despite the generally small effect sizes, it was found that the relationship between age and diastolic blood pressure varies by the amount of social support that an individual receives: The finding that among individuals with more social support, the relationship between age and DBP is weaker is consistent with previous research that has found having a stronger social support system to be associated with a longer healthier life (Berkman & Syme, 1979; Blazer, 1982; Eriksen, 1994; House et al., 1982). Since blood pressure naturally increases with age, it may be that the social support that is provided by others contributes to healthy behaviors that serve to lessen the effects of this natural tendency.
Social support was also found to buffer the relationship between racist experiences and blood pressure, but only among younger respondents. In this subsample, less social support in combination with more racist experiences was associated with higher DBP. Thus, younger respondents who have less total social support may not be able to draw on resources from this network in order to either help them appraise the racist situations as less stressful or facilitate healthy behaviors that may reduce the association that these situations have with DBP (House, 1981). For young respondents who have a larger social network these two mechanisms may work to make the experience of racial discrimination virtually unrelated to health outcomes.

At this point, it is unclear why the same buffering function was not seen among older respondents. Recall that older respondents tended to have more total and kin social support than younger respondents. It may be that among older respondents, the buffering effect is offset by a need to care for aging friends and relatives. Among older respondents, having more social support may translate into more responsibility, which may neutralize the positive functions that Wortman and Conway (1985) theorized social support to have. Or, it may be that among older respondents, the support that they are receiving is less helpful. Thoits (1985) described boomerang effects in which well-intentioned others have destructive effects on an individual’s mood. One such example is when others deny an individual’s grief or anxiety when that individual would rather openly express these feelings (Wortman, 1984). However, it is still unclear as to why older respondents would receive less beneficial support.
Hardiness. These data failed to support the hypothesized buffering effect of hardiness on the stress-illness relationship. Recall that the concept of hardiness is comprised of having a strong commitment to various aspects of one’s life, an internal locus of control, and an enjoyment of challenge. Thus, among individuals who possess more of these attributes, there was a tendency for more racist experiences to be associated with higher diastolic blood pressures.

It may be that hardy individuals are more threatened by racial discrimination than less hardy individuals, resulting in their worsened physical health. The hardy individual may find racial discrimination particularly debilitating because it is often difficult, if not impossible to control. Moreover, under certain circumstances, racial discrimination may threaten those life commitments that the hardy individual holds most dear. For example, racial discrimination that results in job loss would probably more negatively impact (both psychologically and physically) an individual who scores high in hardiness than one who scores low. These data certainly bring to question the theoretical foundation on which the concept of hardiness rests and the applicability of this theory to this particular type of stress.

Interestingly, these data also found a main effect for hardiness on self-rated health. There has been some debate in the literature concerning whether hardiness predominantly functions as a main effect on illness or a buffer of the relationship between stress and illness (Funk & Houston, 1987; Hull et al., 1987; Kobasa et al., 1982). However, the finding of a main effect on self-rated health is tempered by the fact that this is a self-report measure. Considering the way that the item is worded (“Overall, how would you
rate your physical health”), it is not surprising that an optimistic thinker would tend to score higher on self-rated health. Given that some of the research that has found main effects for hardiness also relies on self-report data (e.g., Kobasa et al., 1982), the argument for hardiness primarily functioning in the capacity of a main effect is weakened.

John Henryism. Surprisingly, John Henryism failed to function as a moderator of the relationship between racist experiences and blood pressure. Although this construct has not been tested in this manner to date, I originally speculated that having a proclivity towards actively coping with environmental stressors would weaken the relationship between racist experiences and health, but this does not appear to be the case. Experiencing more racial discrimination was associated with higher DBP regardless of whether an individual engages in active coping.

This finding may have been due to the way that active coping is conceptualized in the John Henryism scale. Recall that this scale taps the belief that through hard work and determination one can overcome life’s obstacles. In other words, individuals scoring high on this scale desire control over their lives and the situations in which they find themselves. However, having a desire for personal control and actually having personal control over life situations are quite different from one another. Indeed, the most frustrating aspect of experiencing racial discrimination may be the lack of control over the situation. Much like the tendency to perceive discrimination, the characteristics of the situation may play an important role in determining the manner in which John Henryism relates to the experience of racial discrimination and health. For example, it may be that when individuals feel that they can alter the circumstances of the situation in which
discrimination occurs (i.e., perceived situational control is high), John Henryism serves to buffer the effects of the discrimination on short term physiological changes. However, when there is a lack of situational control, having a desire for it (i.e., scoring high in John Henryism) may exacerbate the experience of discrimination. So, perhaps the exploration of this construct as a buffer of the stress-illness relationship outside of situational context is meaningless.

Much like hardiness, there was a main effect for John Henryism as well as an interaction between John Henryism and racist experiences regarding self-rated health only. Thus, the same biases that were previously discussed apply. As before, it is conceivable that an individual who tends to be more self-efficacious would have a more positive view of his or her health. Indeed, self-efficacy beliefs tend to be self-confirming such that information is distorted in order to be consistent with current beliefs (Maddux & Lewis, 1995). So, it is unclear exactly how much of this interaction is due to shared method variance and how much is due to a true relationship. The argument for there being a true relationship would have been strengthened by similar findings when blood pressure recordings were the dependent variable, but this was not the case.

In summary, these data indicate that being victimized by racial discrimination may be associated with higher diastolic blood pressures among African American adults. Furthermore, repression, the inability to openly acknowledge the experience of negative affect was also associated with higher diastolic pressures. Nevertheless, having social support accessible (among younger respondents) may serve to weaken the relationship between experiencing racial discrimination and blood pressure. Despite the focus on
relatively enduring personality characteristics in the current study, it is acknowledged that specific situational characteristics may also play an important role in determining an individual’s psychological and physiological response to discrimination. Undoubtedly the relationship between racial discrimination and physical health is complex, but the current study represents a step in the direction of disentangling these complexities.

**Limitations/future directions.** All research suffers from shortcomings, and this study is no different. First, the correlational nature of the study makes interpretation of the data somewhat ambiguous in that causality can not be ascertained. Although previous theory and research support the contention that the independent variables are influencing the dependent variables, the present data are not able to speak to this question. Indeed, reverse causation, third-variable causation, and reciprocal/circular causation are equally plausible interpretations. It is unclear how higher blood pressures would cause individuals to experience more racism, particularly since few of the respondents were known to be hypertensive. However, third-variable causation and reciprocal causation are plausible explanations for the data. It may be that experiencing discrimination results in physiological changes (including increased blood pressure) that are able to influence the response that is elicited. The type of response that is elicited may then influence an individual’s perceptions of whether or not she or he was discriminated against.

Conducting an experimental manipulation would appear to be a way of addressing these issues, but it carries its own shortcomings. Aside from the ethical issues surrounding experimentally induced victimization, the ecological validity of such a study would be in question. It would be virtually impossible to imitate in a laboratory situation
the socio-cultural context in which racial discrimination occurs. One could impose specific instances of unfair treatment upon a participant in a laboratory, but could never imitate a life-long accumulation of being victimized by racial discrimination. Future research should use longitudinal designs to assess the extent to which being victimized by racial discrimination predicts future health outcomes, but perhaps the question of causality must remain unanswered.

This study also suffers from limitations of external validity. Because of the size of the sample as well as the selective nature of participant recruitment, the extent to which these findings generalize to the US African American population is questionable. Nevertheless, since this topic has only recently started receiving research attention, the current study may be viewed as exploratory in nature. Most studies of this type do indeed have relatively small selective samples, making the next logical step replication in larger probability samples. The fact that meaningful effects were achieved in the current study suggests that this next step is in order for the present line of inquiry.

Finally, this study suffers from limitations in measurement. These data are undoubtedly influenced to some extent by the biases associated with self-report data. I have already discussed several instances in which this type of data yielded difficult to interpret findings. One advantage of the current study is that the primary dependent measure, blood pressure, was not based on self-report. This characteristic allowed for the comparison of findings that were based on self-report dependent measures to those that were observer based measures. Future research should continue to combine different sources of data not only for dependent measures, but also for independent measures.
The findings of the current study raised as many questions for future research as they answered. Future research should include an index of the amount of perceived control that is experienced for each racist experience. In a similar vein, behavior-specific measures of coping would certainly further our understanding of potential moderators of the relationship between racist experiences and blood pressure. Importantly, having a limited set of response options with which to answer the questions in the current study impaired respondents' ability to openly express their feelings surrounding their experiences of discrimination. This is certainly a sensitive topic that may have stirred a variety of feelings within respondents. Thus, research that is based on interviews would certainly advance the current knowledge of this topic.

In conclusion, this study furthers current thinking on the relationship between the experience of racial discrimination and health by not only using a more refined index of racist experiences, but also by exploring the moderators of this relationship. The findings of this study are preliminary indeed, but they suggest that racist experiences are positively associated with blood pressure and that the nature of this relationship to some extent depends on both hardiness and a combination of age and social support. The fact that researchers have only recently begun to examine the relationship between discrimination and health outcomes speaks to the growing concern with the deleterious effects of this problem on African Americans. A better understanding of the current topic is crucial in order to direct policy makers’ attention towards a socio-political factor with important implications for public health. In light of the critique by Satel (1997) that argues that the link between racism and disease is a sociological myth, it is increasingly important to
provide scientific evidence that will allow health officials to make informed decisions about where to stand in this debate.

References


in automatic and 24-hour indirect monitoring (pp. 241-251). New York: Springer-Verlag.


Hollingshead, A. B. (1975). Four-factor index of social status. Unpublished manuscript, Yale University, New Haven, CT.


The same flyer was used as in the first method. The only exception was that this flyer invited “all parents/relatives of children participating in the Concerned Black Men of Massachusetts, Inc. Paul Robeson Institute for Positive Self-Development, as well as all members of Concerned Black Men” to participate.

For the following measures, missing data were replaced with the respondents’ scale/subscale mean provided that at least 80% of responses for a given measure were present: Black identity, hardiness, the John Henryism scale for active coping, the perception of discrimination scale, and the denial of distress subscale.
Table 1

**Intercorrelations Among Variables by Gender**

<table>
<thead>
<tr>
<th>Scale</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Social support</td>
<td>--</td>
<td>.11</td>
<td>-.12</td>
<td>-.04</td>
</tr>
<tr>
<td>2. Hardiness</td>
<td>.42**</td>
<td>--</td>
<td>.32**</td>
<td>.27*</td>
</tr>
<tr>
<td>3. John Henryism</td>
<td>.35</td>
<td>.42**</td>
<td>--</td>
<td>.38**</td>
</tr>
<tr>
<td>4. Life satisfaction</td>
<td>.32*</td>
<td>.47</td>
<td>.45**</td>
<td>--</td>
</tr>
</tbody>
</table>

*Note.* The intercorrelations for women are above the diagonal and for men are below the diagonal.

*p ≤ .05. **p ≤ .01.*
Table 2

Analysis of Variance for John Henryism, Socioeconomic status, and Health Outcomes

<table>
<thead>
<tr>
<th>Source</th>
<th>SBP</th>
<th>DBP</th>
<th>Health</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F(5,82)</td>
<td>F(5,82)</td>
<td>F(5,89)</td>
</tr>
<tr>
<td>John Henryism</td>
<td>.51</td>
<td>.02</td>
<td>3.42+</td>
</tr>
<tr>
<td>Socioeconomic status</td>
<td>.96</td>
<td>.27</td>
<td>.01</td>
</tr>
<tr>
<td>John Henryism x SES</td>
<td>1.42</td>
<td>.00</td>
<td>2.82+</td>
</tr>
<tr>
<td>F, explained</td>
<td>4.04**</td>
<td>3.06**</td>
<td>1.88</td>
</tr>
</tbody>
</table>

Note. Age and gender were covariates.

+p ≤ .10. **p ≤ .01.
Table 3

Correlations Between Repression and Indices of Mental and Physical Health

<table>
<thead>
<tr>
<th>Scale</th>
<th>Repression</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mental health</strong></td>
<td></td>
</tr>
<tr>
<td>Life satisfaction</td>
<td>.22*</td>
</tr>
<tr>
<td>John Henryism</td>
<td>.27**</td>
</tr>
<tr>
<td>Hassles</td>
<td>-.32**</td>
</tr>
<tr>
<td>Racist experiences</td>
<td>-.12</td>
</tr>
<tr>
<td>Hardiness</td>
<td>.08</td>
</tr>
<tr>
<td><strong>Physical health</strong></td>
<td></td>
</tr>
<tr>
<td>Self-rated health</td>
<td>.20*</td>
</tr>
<tr>
<td>Systolic blood pressure</td>
<td>.16+</td>
</tr>
<tr>
<td>Diastolic blood pressure</td>
<td>.21*</td>
</tr>
</tbody>
</table>

*Note.* N’s ranged from 76 to 110 due to missing data.

+p ≤ .10. *p ≤ .05. **p ≤ .01.
Table 4

Correlations Between Racist Experiences and Conceptually Related Measures

<table>
<thead>
<tr>
<th>Scale</th>
<th>Racist experiences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perception of discrimination</td>
<td>.34***</td>
</tr>
<tr>
<td>Time spent thinking about one's race</td>
<td>.27**</td>
</tr>
<tr>
<td>Black identity</td>
<td>.20*</td>
</tr>
<tr>
<td>Hassles</td>
<td>.29*</td>
</tr>
</tbody>
</table>

Note. N's ranged from 69 to 94 due to missing data.

*p ≤ .05. **p ≤ .01. ***p ≤ .001.
<table>
<thead>
<tr>
<th>Scale</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
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</thead>
<tbody>
<tr>
<td>1. Racist experiences</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Perceptions of discrimination</td>
<td>.34***</td>
<td>--</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>3. Black identity</td>
<td>.20**</td>
<td>.16+</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Time spent thinking about one’s race</td>
<td>.27**</td>
<td>.19+</td>
<td>.45***</td>
<td>--</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. SBP</td>
<td>.07</td>
<td>-.11</td>
<td>.16+</td>
<td>.05</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>6. DBP</td>
<td>.24*</td>
<td>.01</td>
<td>.04</td>
<td>.08</td>
<td>.31***</td>
<td>--</td>
</tr>
<tr>
<td>7. Self-rated health</td>
<td>.03</td>
<td>-.12</td>
<td>.11</td>
<td>-.01</td>
<td>-.02</td>
<td>-.05</td>
</tr>
</tbody>
</table>

**Note.** SBP = Systolic blood pressure. DBP = Diastolic blood pressure.

+ $p \leq .10$. * $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$. 
Table 6

Blood Pressure and Self-Rated Health Regressed on Racist Experiences

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>SBP (3,83)</th>
<th>DBP (3,83)</th>
<th>Health (3,88)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Racist experiences (β)</td>
<td>.06</td>
<td>.20*</td>
<td>.08</td>
</tr>
<tr>
<td>( R^2 )</td>
<td>.10</td>
<td>.20</td>
<td>.05</td>
</tr>
<tr>
<td>( F )</td>
<td>3.07*</td>
<td>7.05***</td>
<td>1.43</td>
</tr>
</tbody>
</table>

Note. Obesity and the number of family members who were reported to have hypertension were entered into the equation as controls.

*= p ≤ .05. **p ≤ .001.
Table 7

Blood Pressure and Self-Rated Health Regressed on Racist Experiences, Repression, and their Interactions

<table>
<thead>
<tr>
<th>Health outcome</th>
<th>SBP (6, 78)</th>
<th>DBP (6, 78)</th>
<th>Health (6, 83)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent variable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Racist experiences (β)</td>
<td>.05</td>
<td>.24*</td>
<td>.09</td>
</tr>
<tr>
<td>Repression (β)</td>
<td>.06</td>
<td>.22*</td>
<td>.20+</td>
</tr>
<tr>
<td>Racist experiences x Repression (β)</td>
<td>-.01</td>
<td>.10</td>
<td>-.03</td>
</tr>
<tr>
<td>$R^2$</td>
<td>.19</td>
<td>.25</td>
<td>.10</td>
</tr>
<tr>
<td>$F$</td>
<td>3.14**</td>
<td>4.36***</td>
<td>1.62</td>
</tr>
</tbody>
</table>

Note. Obesity, gender, and the number of family members who were reported to have hypertension were entered into the equation as controls.

+p ≤ .10. *p ≤ .05. **p ≤ .01. ***p ≤ .001.
Table 8

Blood Pressure and Self-Rated Health Regressed on Racist Experiences, Perception of Discrimination, and their Interactions

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>Health outcome</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>SBP</td>
</tr>
<tr>
<td></td>
<td>(5, 81)</td>
</tr>
<tr>
<td>Racist experiences (β)</td>
<td>.15</td>
</tr>
<tr>
<td>Perception of discrimination (β)</td>
<td>-.16</td>
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<tr>
<td>Racist experiences x Perception of discrimination (β)</td>
<td>-.07</td>
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<tr>
<td>R²</td>
<td>.12</td>
</tr>
<tr>
<td>F</td>
<td>2.29*</td>
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</tbody>
</table>

Note. Obesity and the number of family members who were reported to have hypertension were entered into the equation as controls.

*p ≤ .05. ***p ≤ .001.
Table 9

**Blood Pressure and Self-Rated Health Regressed on Age, Total Social Support, and their Interactions**

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>Health outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SBP (3, 102)</td>
</tr>
<tr>
<td>Total Social support(β)</td>
<td>-.04</td>
</tr>
<tr>
<td>Age (β)</td>
<td>.23*</td>
</tr>
<tr>
<td>Total Social support x Age (β)</td>
<td>-.02</td>
</tr>
<tr>
<td>R²</td>
<td>.05</td>
</tr>
<tr>
<td>F</td>
<td>1.79</td>
</tr>
</tbody>
</table>

* p ≤ .05. **** p ≤ .0001.
Table 10

Blood Pressure and Self-Rated Health Regressed on Age, Kin Social Support, and their Interactions

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>Health outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SBP (3, 102)</td>
</tr>
<tr>
<td></td>
<td>DBP (3, 102)</td>
</tr>
<tr>
<td></td>
<td>Health (3, 107)</td>
</tr>
<tr>
<td>Kin Social support(β)</td>
<td>.12</td>
</tr>
<tr>
<td></td>
<td>.13</td>
</tr>
<tr>
<td></td>
<td>.08</td>
</tr>
<tr>
<td>Age (β)</td>
<td>.18+</td>
</tr>
<tr>
<td></td>
<td>.36***</td>
</tr>
<tr>
<td></td>
<td>.07</td>
</tr>
<tr>
<td>Kin Social support x Age (β)</td>
<td>-.11</td>
</tr>
<tr>
<td></td>
<td>-.21*</td>
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<td></td>
<td>-.04</td>
</tr>
<tr>
<td>R²</td>
<td>.07</td>
</tr>
<tr>
<td></td>
<td>.21</td>
</tr>
<tr>
<td></td>
<td>.01</td>
</tr>
<tr>
<td>F</td>
<td>2.54+</td>
</tr>
<tr>
<td></td>
<td>9.24****</td>
</tr>
<tr>
<td></td>
<td>.54</td>
</tr>
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</table>

+p ≤ .10. *p ≤ .05. ***p ≤ .001. ****p ≤ .0001.
Table 11

Blood Pressure and Self-Rated Health Regressed on Age, Non-Kin Social Support, and their Interactions

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>Health outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SBP (4, 101)</td>
</tr>
<tr>
<td>Non-Kin Social support(β)</td>
<td>-.09</td>
</tr>
<tr>
<td>Age (β)</td>
<td>.23**</td>
</tr>
<tr>
<td>Non-Kin Social support x Age (β)</td>
<td>-.01</td>
</tr>
<tr>
<td>R²</td>
<td>.17</td>
</tr>
<tr>
<td>F</td>
<td>5.08***</td>
</tr>
</tbody>
</table>

Note. Gender was entered into the equation as a control.

**p ≤ .01. ***p ≤ .001. ****p ≤ .0001.
Table 12

Diastolic Blood Pressure Regressed on Racist Experiences, Total Social support, and their Interactions by Age

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>Diastolic Blood Pressure (5,37)</th>
<th>Age ≤ 32 years (n = 46)</th>
<th>Age ≥ 33 years (n = 46)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Racist experiences (β)</td>
<td>.09</td>
<td>.30*</td>
<td></td>
</tr>
<tr>
<td>Total Social Support (β)</td>
<td>-.09</td>
<td>-.12</td>
<td></td>
</tr>
<tr>
<td>Racist experiences x Social support (β)</td>
<td>-.42**</td>
<td>.07</td>
<td></td>
</tr>
<tr>
<td>$R^2$</td>
<td>.37</td>
<td>.24</td>
<td></td>
</tr>
<tr>
<td>$F$</td>
<td>4.40**</td>
<td>2.28+</td>
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</tr>
</tbody>
</table>

Note. Obesity and the number of family members who were reported to have hypertension were entered into the equation as controls.

+p ≤ .10. *p ≤ .05. **p ≤ .01.
Table 13

Systolic Blood Pressure and Health Regressed on Racist Experiences, Total Social Support, and their Interactions

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>Health outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SBP</td>
</tr>
<tr>
<td></td>
<td>(7, 79)</td>
</tr>
<tr>
<td>Racist experiences (β)</td>
<td>.12</td>
</tr>
<tr>
<td>Total Social support (β)</td>
<td>.04</td>
</tr>
<tr>
<td>Racist experiences x Social support (β)</td>
<td>-.02</td>
</tr>
<tr>
<td>R²</td>
<td>.14</td>
</tr>
<tr>
<td>F</td>
<td>1.76</td>
</tr>
</tbody>
</table>

Note. Obesity, repression, the tendency to perceive discrimination, and the number of family members who were reported to have hypertension were entered into the equation as controls.

+p ≤ .10.
Table 14

Blood Pressure and Health Regressed on Racist Experiences, Hardiness, and their Interactions

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>Health outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SBP</td>
</tr>
<tr>
<td></td>
<td>(7, 77)</td>
</tr>
<tr>
<td>Racist experiences (β)</td>
<td>.13</td>
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<tr>
<td>Hardiness (β)</td>
<td>.03</td>
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<tr>
<td>Racist experiences x Hardiness (β)</td>
<td>.17</td>
</tr>
<tr>
<td>R²</td>
<td>.16</td>
</tr>
<tr>
<td>F</td>
<td>2.13*</td>
</tr>
</tbody>
</table>

Note. Obesity, repression, the tendency to perceive discrimination, and the number of family members who were reported to have hypertension were entered into the equation as controls.

+.10. *p ≤ .05. **p ≤ .001.
Table 15

Blood Pressure and Health Regressed on Racist Experiences, John Henryism, and their Interactions

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>Health outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SBP</td>
</tr>
<tr>
<td></td>
<td>(7, 77)</td>
</tr>
<tr>
<td>Racist experiences (β)</td>
<td>.09</td>
</tr>
<tr>
<td>John Henryism (β)</td>
<td>.02</td>
</tr>
<tr>
<td>Racist experiences x John Henryism (β)</td>
<td>.16</td>
</tr>
<tr>
<td>R²</td>
<td>.16</td>
</tr>
<tr>
<td>F</td>
<td>2.04+</td>
</tr>
</tbody>
</table>

Note. Obesity, repression, the tendency to perceive discrimination, and the number of family members who were reported to have hypertension were entered into the equation as controls.

+p ≤ .10. *p ≤ .05. **p ≤ .001. ***p ≤ .0001.
Dear

My name is Kimberly R. Jacob Arriola, and I am a doctoral student in the Psychology department here at Northeastern University. I am conducting a study on peoples’ perceptions of social interactions that examines situational characteristics that people use to determine whether they have been treated unequally. This research is very important because the inferences that we draw may have profound implications for our self-esteem and mental health in general.

You have been randomly selected from the African American faculty and staff at NEU to participate in this project. Participation requires less than 15 minutes of your time and entails completing the enclosed brief questionnaire. Additionally, I have enclosed a self-addressed envelope so that you may return the questionnaire to me via campus mail at your earliest convenience.

Your participation is completely voluntary, and you may withdraw from the study at any time. You do not have to answer any questions that you find problematic. Please be assured that randomly assigned code numbers are used to file all information that you give us. Other than your signature below, indicating your willingness to participate, we will have no record of your name. This form will be detached from your completed questionnaire and filed separately. Thus, your responses are both anonymous and confidential.

In an effort to thank participants for assisting me with this project I will conduct a random drawing for $100. The drawing will be held on Friday, June 6, so I strongly urge you to complete the questionnaire by this date. Should you decide to participate in this project, please include the enclosed entry ticket as well as the questionnaire in the envelope that is also enclosed.

Thank you for considering this research project. I look forward to receiving your responses. Should you have any questions or comments, I may be reached at 373-3079 or via the internet at “Jacob@neu.edu”. Good luck in the drawing!!!!
Informed Consent for Participation in Research

I have read the description of this study and I give permission for my participation. I understand that I am free to skip any question, or to withdraw this consent and discontinue participation in this project at any time. I understand that my responses are anonymous and confidential, and that this consent form will be filed separately from my completed questionnaire. I have been informed that the project coordinator, Kimberly Jacob Arriola will be available to answer any questions I may have. I am aware that I may submit an entry ticket for a drawing for $100 due to my completion of this questionnaire.
Appendix C

You are Cordially Invited to Participate in a Unique Research Opportunity Concerning...

Health and Life Experiences among Blacks in America

The study: Researchers at Northeastern University are conducting groundbreaking research on stress and hypertension among Black adults. The purpose of this study is to develop a better understanding of the psychological and sociological risk factors of the disease.

Eligibility: You must be of African descent and between 18 and 65 years of age. We are inviting all parents/relatives of Boston Renaissance children, as well as all faculty and staff at Boston Renaissance.

Participation involves: 1) Having your blood pressure taken on 2 separate occasions at the Boston Renaissance Charter School (anytime during the week or on Saturdays). 2) Completing a questionnaire (in the comfort of your home) that takes approximately 45 minutes.

Compensation: You will receive $15 for participating.

Please contact Kimberly Jacob Arriola at 373-3079 for more information.

This study has been approved by the Northeastern University Institutional Review Board.

Appendix D

Perception of Discrimination scenarios (developed by author)
Response options: 1 (not at all likely) to 4 (somewhat likely) to 7 (extremely likely)

1. At your place of employment, Black employees work separately from one another, in different corners of the office area. Your employer planned it this way, arguing that fewer interactions with other Blacks will make you a more productive worker.

2. You are working as a camera-person and you notice that you are the only Black person among 30 other camera-people. The manager of a hotel in which you are filming offers you assistance in setting up your equipment.

3. Your high school counselor tells you that you should take the American College Test to prepare for college instead of the Scholastic Aptitude Test because Black people typically perform less well on the Scholastic Aptitude Test.

4. Your boss introduces you to a new client whom you will be working closely with for the next 3 months. She explains to the client that you are from a very well-off family with a good background, so you are a very good worker.

5. You are competing against three colleagues for a promotion at work. You receive the promotion and in congratulating you, your employer states that they had been looking for a qualified Black person to fill this position for some time.

6. In your place of employment, employees receive $100 for referring new employees, and you refer a member of your family who is later hired. Your employer informs you that you will not receive the referral money because it does not apply when a family member is being referred, although you were previously unaware of such a rule.

Appendix D cont.
7. You are in the market for a new car, and you inform the salesperson that your price range is between $30,000 and $40,000. He asks whether or not you are currently employed.

8. In an effort to diversify its staff, a local business is working hard to recruit Black people. You are one of 10 prospective minority employees who have an interview on a particular week, and you are all offered a job.

9. You go to a restaurant and you are seated at a table near the kitchen. You question this table selection because the restaurant is nearly empty. The hostess politely informs you that a large party has reserved many of the tables that appear to be vacant.

10. You go to a local gas station for gas for your car and have problems getting the fuel pump to release the fuel. You go inside to ask the attendant what the problem is, and he states that you must pay before fueling, even though there are no signs stating this rule.

11. You go to the ATM machine to get some cash. As you approach the door to the building, another customer quickly enters the building and allows the door to close so that you now need to use your ATM card to open the door.

12. You are next in line for service at the post office. After helping a customer in front of you, the postal clerk closes his window and suggests that you wait for one of the other clerks to become available.

13. You are having dinner with friends at a very nice seafood restaurant. You place an order for a dish that appears to be very expensive, and the price is not listed on the menu. The waiter informs you of the price of the menu item and asks whether you still want to Appendix D cont.
order that particular item.

14. You are on a commercial flight traveling to another major city. The flight attendant is distributing the most recent issue of *The Wall Street Journal* to passengers but fails to offer you a copy.

15. You are a student in a class, and the first exam is in 2 days. The professor announces a study review session, and directs his gaze at you when announcing that students needing extra help are especially encouraged to attend.
Schedule of Racist Events (Landrine & Klonoff, 1996b)

Response options: never, once in a while, sometimes, a lot, most of the time, almost all of the time; not at all stressful to extremely stressful.

1. To what extent have you thought that you were treated unfairly by teachers and professors because you are Black?

To what extent in the past 5 years?

How stressful was this for you?

2. To what extent have you thought that you were treated unfairly by your employers, bosses and supervisors because you are Black?

To what extent in the past 5 years?

How stressful was this for you?

3. To what extent have you thought that you were treated unfairly by your coworkers, fellow students and colleagues because you are Black?

To what extent in the past 5 years?

How stressful was this for you?

4. To what extent have you thought that you were treated unfairly by people in service jobs (store clerks, waiters, bartenders, bank tellers and others) because you are Black?

To what extent in the past 5 years?

How stressful was this for you?

Appendix E cont.
5. To what extent have you thought that you were treated unfairly by strangers (for example, people passing on the street, other customers, or passengers on trains) because you are Black?

To what extent in the past 5 years?

How stressful was this for you?

6. To what extent have you thought that you were treated unfairly by people in helping jobs (doctors, nurses, psychiatrists, case workers, dentists, school counselors, therapists, social workers and others) because you are Black?

To what extent in the past 5 years?

How stressful was this for you?

7. To what extent have you thought that you were treated unfairly by neighbors because you are Black?

To what extent in the past 5 years?

How stressful was this for you?

8. To what extent have you been treated unfairly by institutions (schools, universities, law firms, the police, the courts, the Department of Social Services, the Unemployment Office and others) because you are Black?

To what extent in the past 5 years?

How stressful was this for you?

Appendix E cont.
9. To what extent have you thought that you were treated unfairly by people that you thought were your friends because you are Black?

To what extent in the past 5 years?

How stressful was this for you?

10. To what extent have you thought that you were accused or suspected of doing something wrong (such as stealing, cheating, not doing your share of the work, or breaking the law) because you are Black?

To what extent in the past 5 years?

How stressful was this for you?

11. To what extent do you think that people have misunderstood your intentions and motives because you are Black?

To what extent in the past 5 years?

How stressful was this for you?

12. To what extent have you wanted to tell someone off for being racist but didn’t say anything?

To what extent in the past 5 years?

How stressful was this for you?

13. To what extent have you been really angry about something racist that was done to you?

To what extent in the past 5 years?

How stressful was this for you?

Appendix E cont.
14. To what extent were you *forced to take drastic steps* (such as filing a grievance, filing a lawsuit, quitting your job, moving away and other actions) to deal with some racist thing that was done to you?

To what extent in the past 5 years?

How stressful was this for you?

15. To what extent have you been *called a racist name like nigger, coon, jungle bunny* or other names?

To what extent in the past 5 years?

How stressful was this for you?

16. To what extent have you *gotten into an argument or a fight about something racist that was done to you or somebody else*?

To what extent in the past 5 years?

How stressful was this for you?

17. To what extent have you been *made fun of, picked on, pushed, shoved, hit, or threatened with harm* because you are Black?

To what extent in the past 5 years?

How stressful was this for you?

18. How different would your life be now if you *HAD NOT BEEN* treated in a racist and unfair way in the past five years?

Response options: Same as now, a little different, different in a few ways, different in a lot of ways, different in most ways, totally different

Appendix F
Revised Hassles Scale (DeLongis et al., 1988).

Response options: none or not applicable, somewhat, quite a bit, a great deal

1. Your child (ren) 17. Contraception
2. Your parents or parents-in-law 18. Exercise (s)
3. Other relative (s) 19. Your medical care
4. Your spouse 20. Your health
5. Time spent with family 21. Your physical abilities
6. Health or well-being of a family member 22. The weather
7. Sex 23. News events
8. Intimacy 24. Your environment (e.g., quality of air, noise level, greenery)
9. Family-related Obligations 25. Political or social issues
10. Your friend (s) 26. Your neighborhood (e.g., neighbors, setting)
11. Fellow workers 27. Conserving (gas, electricity, water, gasoline, etc.)
12. Clients, customers, patients, etc. 28. Pets
13. Your supervisor or employer 29. Cooking
14. The nature of your work 30. Housework
15. Your work load 31. Home repairs
16. Your job security 32. Yardwork

Appendix F cont.
33. Meeting deadlines or goals on the job
34. Enough money for necessities (e.g., food, clothing, housing, health care, taxes, insurance)
35. Enough money for education
36. Enough money for emergencies
37. Enough money for extras (e.g., entertainment, recreation, vacations)
38. Financial care for someone who doesn’t live with you
39. Investments
40. Your smoking
41. Your drinking
42. Mood-altering drugs
43. Your physical appearance
44. Car maintenance
45. Taking care of paperwork (e.g., paying bills, filling out forms)
46. Home entertainment (e.g., TV, music, reading)
47. Amount of free time
48. Recreation and entertainment outside the home (e.g., movies, sports, eating out, walking)
49. Eating (at home)
50. Church or community organizations
51. Legal matters
52. Being organized
53. Social commitments

Appendix G
Black Identity subscale (Arriola & Cole, 1997)

Response options: strongly disagree, disagree, neutral/uncertain, agree, strongly agree.

1. I take a lot of pride in Black historical accomplishments.
2. I spend time working in organizations that address Black people's concerns.
3. Black children don't necessarily need to have Black role models.
4. My race is not that important to who I am; we're all human.
5. I don't really feel any connection with Black culture.
6. I think it's important for Black people to look out for each other's best interests.
7. It is (or would be) important to me to teach my children about the history of Black people in America.
8. Being Black is an important part of my self-image.
9. I often read Black publications such as newspapers or magazines.
10. I try to see movies made by Black directors.

Appendix H
Denial of distress subscale (Weinberger, 1990)

Response options: false, somewhat false, not sure, somewhat true, true.

1. There are times when I'm not very proud of how well I've done something.

2. Some things have happened this year that I felt unhappy about at the time.

3. I can think of times when I did not feel very good about myself.

4. When I try something for the first time, I am always sure that I will be good at it.

5. I never feel sad about things that happen to me.

6. Once in a while, I get upset about something that I later see was not that important.

7. I sometimes give up doing something because I don't think I'm very good at it.

8. I feel afraid if I think someone might hurt me.

9. I feel at least a little upset when people point out things I have done wrong.

10. I feel a little down when I don't do as well as I thought I would.

11. If people I like do things without asking me to join them, I feel a little left out.
Index of Social Support (Dressler, 1991)

Response options: no one, family member, relative, friend/neighbor, pastor/church member, someone you work with, doctor/social worker, other.

1. When you feel you have been mistreated in some situation because you are Black, who do you turn to for help with that problem?

2. When you have problems at your job, who do you turn to for help with those problems?

3. When you have problems involving your parents, who do you turn to for help with those problems?

4. When you have problems involving your children, who do you turn to for help with those problems?

5. When you have problems in your marriage, who do you turn to for help with those problems?

6. When you have financial problems, like when you are short of money, who do you turn to for help with those problems?

7. When you have problems involving your health, who do you turn to for help with those problems?

8. When you have personal problems, like if you're feeling depressed or down, who do you turn to for help with those problems?

Appendix J
Personal Views Survey-II (Maddi, 1997)

Response options: not at all true, a little true, neutral, quite a bit true, completely true.

(The subscale items were interspersed on the actual questionnaire.)

Commitment

1. I often wake up eager to take up my life where it left off the day before.
2. It's hard to imagine anyone getting excited about working.
3. Most people who work for a living are just manipulated by their bosses.
4. New laws shouldn't be made if they hurt a person's income.
5. When you marry and have children, you have lost your freedom of choice.
6. It doesn't matter how hard you work at your job, since only the bosses profit from it.
7. Daydreams are more exciting than reality for me.
8. I really look forward to my work.
9. It doesn't bother me to shift to another task before I have finished the first.
10. When performing a difficult task, I know when to seek help.
11. Thinking of yourself as a free person just leads to frustration.
12. People who do their best should get full support from society.
13. Most of my life gets spent doing things that are worthwhile.
14. Ordinary work is just too boring to be worth doing.
15. It's hard to believe people who say their work helps society.
16. Most days, life is really interesting and exciting for me.
17. People who believe in individuality are only kidding themselves.

Appendix J cont.
18. I want to be sure someone will take care of me when I get old.

19. Politicians run our lives.

**Control**

1. Most of the time, people listen carefully to what I have to say.

2. Planning ahead can help avoid most future problems.

3. What happens to me tomorrow depends on what I do today.

4. No matter how hard I try, my efforts will accomplish nothing.

5. I feel that it’s almost impossible to change my family’s mind about something.

6. Trying your best at work really pays off in the end.

7. Most of what happens in life is just meant to happen.

8. Trying hard doesn’t pay, since things still don’t turn out right.

9. When I make plans, I’m certain I can make them work.

10. It’s very hard for me to change a friend’s mind about something.

11. When I make a mistake, there’s very little I can do to make things right again.

12. By working hard you can always achieve your goals.

13. It’s best to handle most problems by just not thinking about them.

14. Most good athletes and leaders are born, not made.

15. Lots of times I don’t really know my own mind.

16. If other people get angry at me, it’s usually no fault of mine.

17. I can’t do much to prevent it if someone wants to hurt me.

Appendix J cont.
18. It's usually impossible for me to change things in my life.

Challenge

1. I like a lot of variety in my work.
2. I feel uncomfortable if I have to make any changes in my everyday schedule.
3. The “tried and true” ways are always best.
4. People who never change their minds usually have good judgment.
5. I don’t like conversations when others are confused about what they mean to say
6. I won’t answer a question until I’m really sure I understand it.
7. It’s exciting to learn something about myself.
8. Changes in routine are interesting to me.
9. It bothers me when my daily routine gets interrupted.
10. I respect rules because they guide me.
11. I enjoy it when things are uncertain or unpredictable.
12. I have no use for theories that are not closely tied to the facts.
13. Changes in routine bother me.
John Henryism Scale for Active Coping-12 (James, 1994)

Response options: completely false, somewhat false, neutral, somewhat true, completely true.

1. I’ve always felt that I could make of my life pretty much what I wanted to make of it.

2. Once I make up my mind to do something, I stay with it until the job is completely done.

3. I like doing things that other people thought could not be done.

4. When things don’t go the way I want them to, that just makes me work even harder.

5. Sometimes I feel that if anything is going to be done right, I have to do it myself.

6. It’s not always easy, but I manage to find a way to do the things I really need to get done.

7. Very seldom have I been disappointed by the results of my hard work.

8. I feel that I am the kind of individual who stands up for what he believes in, REGARDLESS OF THE CONSEQUENCES.

9. In the past, even when things got REALLY tough, I never lost sight of my goals.

10. It’s important for me to be able to do things in the way I want to do them rather than the way other people want me to do them.

11. I don’t let my personal feelings get in the way of doing a job.

12. Hard work has really helped me to get ahead in life.

BIOGRAPHICAL DATA
Name: Kimberly Ruth Jacob Arriola

Date of Birth: March 22, 1972

Place of Birth: Providence, Rhode Island

Education:
- Spelman College, Atlanta, Georgia
  1990-1994
  B.A. Psychology, 1994
  Summa Cum laude
- Northeastern University, Boston, MA
  1994-1998
  M.A. Psychology, 1996
  Ph.D. Candidate, 1998

Professional Experience:
- Teaching Assistant, 1994-1998
  Northeastern University
  Department of Psychology
- Summer Intern, 1993
  Centers for Disease Control and Prevention,
  Division of Tuberculosis Elimination
  Atlanta, GA

Professional Organizations:
- American Psychological Association
- Division 9 (Society for the Psychological Study of Social Issues)
- Division 38 (Health Psychology)