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**THE RELATIONSHIP OF PERCEIVED RACISM, NEUROTICISM,
NEGATIVE AFFECTIVITY, AND COPING STRATEGIES TO
BLOOD PRESSURE, STRESS SYMPTOMS, AND
HEALTH VARIABLES AMONG LATINO
COLLEGE STUDENTS**

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COLLEGE STUDENTS**

by

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Dedication

This work is dedicated to those that have made this accomplishment possible. First, it is dedicated to my loving parents, Carol Lynn Rowe and Robert Kellogg Hosford, who have helped instill in me a passion for culture and social justice and whose emotional and material support have made this accomplishment possible. It is dedicated to my wife Oriana Keller Hosford and my daughters Sage and Aislinn Hosford, whose companionship gives life and meaning to this journey. To them go my great thanks for their willingness to provide emotional support and offer the personal sacrifices necessary for me to complete this project. This work of mine is their work also, and bears the indelible fingerprints of their personal sacrifices. Also, this work is dedicated to my God, for the health, material privileges, and generous opportunity to leave my fingerprints on a small contribution. Finally, it is dedicated to all of my friends and acquaintances of color who have allowed me the privilege of their friendship and of seeing the goodness and dignity in their lives. This work is offered as a gift and sign of respect to these brothers and sisters who do now, and have throughout history, labored under discouraging conditions of oppression. May this token evidence my love, my respect for your journey and hardships, and a personal commitment to facilitate justice and brotherhood with all.

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COLLEGE STUDENTS**

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Supervisor: Christopher J. McCarthy

This study explored the relationship between perceived racism and stress symptoms in a sample of Latina/o women and men. One hundred and fifty-one female and male Latina/o college students participated in this study. Resting blood pressure, weight, and height measurements were taken after which participants completed 6 questionnaires measuring experience of perceived racism, coping strategies, neuroticism, negative affectivity, symptoms of distress, and perceived stress.

Questionnaires employed included the Perceived Racism Scale for Latinos (PRSL), the Coping Inventory for Stressful Situations (CISS), the Neuroticism subscale of the NEO PI-R, the Positive and Negative Affect Schedule (PANAS), the Hopkins Symptoms Checklist-21 (HSCL-21), and the Perceived Stress Scale (PSS). It was

hypothesized that neuroticism, negative affectivity, and emotion-focused coping would be positively correlated with self-reports of perceived racism while avoidance coping would be negatively correlated with perceived racism. Perceived racism was hypothesized to predict increased blood pressure, symptoms of distress, and perceived stress. Other predictors included in these regression models included, task-focused, emotion-focused, and avoidant coping strategies, neuroticism, negative affectivity, Body Mass Index, age, and gender.

Emotion-focused coping, task-focused coping, and BMI were positively correlated with increased self-reports of perceived racism. Hypotheses that perceived racism would significantly predict increased blood pressure, symptoms of distress, and perceived stress were not supported. Notably, perceived racism significantly predicted frequency of visits to a physician over the past two months after controlling for variance associated with neuroticism, negative affectivity, coping strategies, BMI, age, and gender.

Avoidant coping negatively predicted both systolic and diastolic blood pressure, while neuroticism negatively predicted diastolic blood pressure. Argument is presented to suggest that items measuring social support rather than maladaptive avoidant coping are responsible for the significant prediction of blood pressure from avoidance coping. BMI also predicted higher systolic and diastolic blood pressure. Male gender was predictive of higher systolic blood pressure while age predicted higher diastolic blood pressure. Neuroticism and negative affectivity were predictive of symptoms of distress. Perceived stress was predicted by emotion-focused coping, neuroticism, negative affectivity, and

BMI. Potential explanations for these results are offered as well as implications and suggestions for future research.

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Chapter One

Introduction

For centuries philosophers have debated and reasoned with one another concerning the nature of the mind in relation to the body (Viney & King, 1998). Authors Krantz and McCeney point out that until recent years the scientific community's views on the matter were summarized to a degree by an editorial statement published in 1985 in *The New England Journal of Medicine* indicating that, "... the evidence for mental state as a cause and cure of today's scourges is not much better than it was for the afflictions of earlier centuries . . . It is time to acknowledge that our belief in disease as a direct reflection of mental state is largely folklore" (Angell, 1985; as cited in Krantz & McCeney, 2002, p. 342).

While the complex connection between physiological disorders and corresponding emotional and psychological states is far from understood in its entirety, recent advancements in the literature have demonstrated such statements to be far from the truth. One area of inquiry in which advancements have been most pronounced concerns the relationship of emotional stress and coping to physiological health and wellbeing. Research has indicated links between stress and various diseases and illnesses ranging from breast cancer survival to chronic obstructive pulmonary disease (Clark, Anderson, Clark, & Williams, 1999) to Coronary Artery Disease (Krantz & McCeney, 2002). As research has begun to establish this important link between stress and physiological disease, theorists and practitioners have begun to investigate major sources of stress which may directly or indirectly contribute to negative health outcomes via stress processes.

Reflecting upon a foundational stress and coping model proposed by Folkman and Lazarus (1984; as cited in Slavin, Rainer, McCreary and Gowda, 1991), Slavin et al. voiced concern that most models in approaching stress and coping from a western psychological perspective fail to sufficiently address contextual factors that may be important to understanding how models may apply to members of minority groups. Subsequently, it has been proposed that one source of chronic stress among minority groups in The United States is that stress associated with race, including stress associated with racism, perceived racism, and racial discrimination.

Perceptive theorists and researchers informed of both the increased understanding of the negative effects of stress on health outcomes and racially disparate morbidity and mortality rates associated with many diseases began to see the potential implications of racial factors on these disparities (Clark et al., 1999). It is well documented that many racial disparities exist among the rates of particular physiological ailments and diseases such as cancer, diabetes, stroke, and hypertension (Heron & Smith, 2007; CDC 2006).

Seminal research on this topic began to focus on the alarmingly high rate of heart disease and hypertension among African Americans in comparison to the white majority (Brondolo, Rieppi, Kelly, & Gerin, 2003). As it is known that stress can have a negative impact on heart disease outcome (Krantz & McCeney, 2002) this seemed a plausible place to begin exploring the idea that stress associated with racism or discrimination may be one cause of these disparities. Clark et al. (1999) have proposed that “numerous psychological stress responses may follow perceptions of racism” (p. 811) and that “psychological and physiological responses to perceptions of racism may, over time be related to numerous health outcomes” (p. 812). Since then, research has clearly

demonstrated a link between racism and discrimination and psychological distress (Krieger, Smith, Naishadham, Hartman, & Barbeau, 2005; Stuber, Galea, Ahern, Blaney, & Fuller; 2003; Williams, Neighbors, James, & Jackson, 2003).

Subsequent research has also begun to demonstrate support for theories implicating racism and discrimination as factors in heart disease and hypertension among African Americans (Brondolo et al., 2003; Williams et al., 2003). For the most part however, this research has neglected the potential influence of racism on other racial and ethnic groups (Brondolo et al., 2003) despite the fact that heart disease also remains the number one cause of death among many of these groups (Smith & Heron, 2007). For example, only a handful of research is available exploring the relationship of racism to physical and mental health among Latinos (Brondolo et al., 2003; Moradi, & Risco, 2006; Ryan, Gee, & Laflamme, 2006; Krieger et al., 2005; Finch & Vega, 2003; Stuber et al., 2003; Ready, 1985). It is important to note for purposes of contextual reference as well as to guide future research, that virtually all groups of color within the United States share some historical legacy of racism and discrimination. These historical sources of oppression include institutionally legitimized, as well as unsanctioned racism, discrimination, and persecution. What effect this history and experience have had on the collective emotional and physiological well-being of these groups is yet to be fully understood.

More frequently than physiological health outcomes, research has focused on the relationship between racism and mental health (Williams et al., 2003). While the majority of this research also suggests that the experience of racism is generally associated with more negative mental health outcomes, studies definitively associating racism with the

genesis of depression or implicating mechanisms by which this is accomplished have remained scarce (Williams et al., 2003). Consequently the connection between the experience of racism and mental health also remains an important area to be explored (Williams et al., 2003).

The extant racism and health research is complex and has not easily lent itself to definitive conclusions (Williams et al., 2003). Much confusion is thought to be due to inadequate or nonexistent control for other variables such as coping strategies, thought to act as important mediators or moderators in the relationship between the experience of racism and its effects on health.

Theories suggesting that coping acts as a mediator in the racism-health relationship propose that one's coping responses are determined by the stress of perceived racism and that one's subsequent coping strategies explain any observed relationship between perceived racism and health outcomes (Brondolo et al., 2003). For example, it has been suggested that the experience of perceived racism fosters feelings of loss of control and victimization and thus an increased tendency to deny such experience (Krieger & Sidney, 1996; Kreiger, 1990). In this way, subtleties associated with perceived racism may drive one's choice of coping strategies in ways not common to other stressors.

Moderator theories of the relationship between perceived racism and health suggest that the coping strategies one employs are independent of the experience of perceived racism. Thus, certain coping strategies such as active strategies would be expected to mitigate the effect of perceived racism on health, while strategies such as

denial or avoidance would serve to enhance the negative effects of perceived racism on health (Brondolo et al., 2003).

A final possibility is that coping strategy plays an additive role in the relationship between perceived racism and stress. This hypothesis proposes that both perceived racism and coping style are independently related to health outcomes and that coping style merely adds to the already present effect of perceived racism on health outcomes (Brondolo et al., 2003). It remains to be determined however, whether coping strategies are driven in part by the experience of perceived racism or whether coping strategies are employed independently of stress associated with perceived racism.

Individual personality traits are also thought to be important contributing variables in the relationship between racism and health outcomes. Specifically, they are thought to play an important role in shaping one's interpretation of potentially threatening stimuli, one's subsequent coping responses to stressors, as well as one's propensity to endorse having experienced stressful stimuli in self-reports. The role and nature of personality traits with respect to perceived racism have as yet been largely unexplored (Brondolo et al., 2003; Williams et al., 2003).

Therefore, this research study will investigate the relationship between perceived racism, and diastolic and systolic blood pressure, symptoms of distress, and perceived stress among a population of Latina/o women and men. Blood pressure levels represent one potential measure indicative of the effect of chronic stress on physiological health. This study will also explore the effects of coping strategies and the personality variables of neuroticism and negative affectivity on these physiological and psychological processes. Each of these variables is thought to be important in this relationship. Finally,

this study will explore the relationship between self-reports of coping strategies, neuroticism, and negative affectivity and one's propensity to report perceived racism.

The following literature review will address specific issues related to the effects of stress and racism on health. Specific topics will include discussions of heart disease, stress and physiological disease, as well as the relationship between racism and blood pressure and cardiovascular reactivity. The effects of coping on the stress response as well as the role of personality traits in the experience of stress and distress will also be discussed.

Chapter Two

Review of Literature

Heart Disease continues to be the leading cause of death in the United States, accounting for 28% of all deaths and claiming the lives of over 685,000 people in 2003 alone (Heron & Smith, 2007). Projected costs of heart disease due to health care costs, loss of productivity, etc. for 2004 were estimated to stretch upwards of 238 billion dollars (CDC, 2004; American Heart Association [AHA], 2004), thus exacting a heavy cost economically as well as on the quality and quantity of life of Americans.

Efforts aimed at reducing the occurrence of heart disease have identified a number of genetic and environmental risk factors. Several behavioral risk factors identified include, lack of physical activity, diet, and tobacco use (Sebregts, Falger, & Bär, 2000). Research efforts have also explored other environmental risk factors, most notably the role of environmental stress in heart disease (Krantz & McCeney, 2002). It has been hypothesized that stress associated with race, including that of racial discrimination, may be partially responsible for racial disparities in the incidence of heart disease (Brondolo, et al., 2003; Harrell, Hall, & Taliaferro, 2003).

One branch of this research has begun to explore the potential relationship between the experience of racism as a stressor and its subsequent effect on health outcomes. Thus far, research endeavors have been promising in gleaning support for such a hypothesis. However, clear conclusions have been hampered by several confounding variables, namely the role of coping and personality variables such as neuroticism, negative affectivity, hostility, anxiety, etc. on this relationship. In addition, this research has only just begun to explore the experience of racism and discrimination on the vast

array of minority groups subject to such experiences. While African Americans have most commonly been the focus of these research endeavors, Latino/as, Asians, Native Americans, Pacific Islanders, Arab Americans, etc. have thus far merely been a footnote in this research.

In order to more fully demonstrate the potential and need for continued research in this area, I will begin by discussing some of the general research concerning stress and its effects on the course of physiological health and disease. I will then continue to discuss the effect that this research has had in influencing the extension of the field into perceived racism with its various subtleties, limitations, and opportunities for future research. This will include a discussion of research methods as well as coping strategies and personality traits as confounding variables.

Stress and Physiological Disease

Recently, a host of research has established connections between mental stress and physiological disease. In reviewing this literature, Clark et al. (1999) reported research supporting links between stress and a vast array of physiological diseases and processes including breast cancer survival, upper respiratory infections, chronic obstructive pulmonary disease, low birth weight and infant mortality, the healing process and others. Some studies have demonstrated that specific types of stress predict cardiovascular disease and mortality (Krantz & McCeney, 2002), while a substantial literature base implicates mental stress as a contributor to cardiovascular disease, coronary heart disease, and hypertension (Gerin et al., 2000).

In a review of the literature linking social factors to organic disease, Krantz and McCeney (2002) identified acute and chronic stress as one of the five key psychosocial

variables related to Coronary Artery Disease, a component of heart disease. The authors concluded that in light of the research, “evidence for a psychological and social impact on Coronary Artery Disease morbidity and mortality is convincing” (p.341, 2002).

Much is yet unknown about the mechanisms by which chronic and acute stress may affect physiological disease in humans (Gerin et al., 2000). It is known that stress triggers hemodynamic and neuroendocrine responses characterized by increases in heart rate and blood pressure, cardiac output, and the release of catecholamines and corticosteroids (Krantz & McCeney, 2002) presenting numerous ways in which stress may affect disease. It has been suggested that these responses may put already diagnosed patients at risk for clinical events and predispose others to future clinical events (Krantz & McCeney, 2002).

The relationship between stress and blood pressure is one relationship to which researchers have increasingly turned to understand the effects of mental stress on disease. In fact, it has been proposed by some that cardiovascular reactivity is the most likely mechanism by which stress affects cardiovascular health (Gerin et al., 2000). Cardiovascular reactivity refers to the manner in which blood pressure and heart rate increase in response to stressful events. Frequent or chronic exposure to stressful stimuli may repeatedly activate this response leading to prolonged elevated blood pressure in sensitive individuals (Gerin et al., 2000).

In controlled studies cardiovascular reactivity has been shown to be a predictor of later diagnosis of heart disease, and in some cases a better predictor than many other routinely assessed risk factors (Krantz & McCeney, 2002). Similar prediction between cardiovascular reactivity and coronary atherosclerosis has also been made in animal

models (Krantz & McCeney, 2002) suggesting that cardiovascular reactivity in response to stress may be a valuable indicator of risk for negative health outcomes due to stress.

Most current models of cardiovascular reactivity presume that multiple factors including intrapersonal and situational characteristics determine the cardiovascular response (Gerin et al., 2000). The notion that cardiovascular reactivity is not necessarily generalizable across different types of stressors implies that cardiovascular response may vary according to the nature and characteristics of specific stressors. This idea has prompted the investigation of the effects of various types of stressors on cardiovascular response.

Further, while the incidence of heart disease and hypertension are known to increase with age (AHA, 2004), it is important to note that cardiovascular reactivity in response to racial stressors has been observed in younger groups of undergraduate students (Clark, 2000). This is important to note in light of previous discussion regarding the proposal that cardiovascular reactivity is the most likely mechanism by which stress subsequently affects cardiovascular health (Gerin et al., 2000).

As mentioned, it is thought that chronic or frequent exposure to stressful stimuli may repeatedly activate this response leading to prolonged elevated blood pressure in sensitive individuals (Gerin et al., 2000). These facts suggest that, while most undergraduate students may not presently be suffering from hypertension, studies observing cardiovascular reactivity or blood pressure levels among this population may be important in constructing models of the subsequent genesis of hypertension and related racial disparities in health outcomes. Interestingly, an earlier study exploring blood pressure among adolescents in the Corpus Christi, Texas, area reported that

Mexican-American adolescents had significantly higher systolic blood pressure than did White adolescents in the same area (Ready, 1985). While the authors did not measure participant's history of discrimination and prejudice, these results were consistent with their initial hypothesis that the experience of discrimination may contribute to elevated blood pressure even among young people (Ready, 1985).

Racism as Stress

Researchers aware of racial and ethnic disparities in morbidity and mortality rates related to heart disease and its concomitants, began to explore the potential contribution of race related factors to the cumulative life stress of individuals of color (Clark et al., 1999; Guyll, Matthews, & Bromberger, 2001; Fang & Myers, 2001). Such work has also come in response to recognition of the need for stress and coping models to account for multicultural variables (Slavin et al., 1991). It is logical that holistic and accurate approaches to understanding the stress process within individuals of color must account for environmental stressors specific to these populations and their experience.

Sources of Race Related Stress

Race related factors have been proposed to impact stress and subsequently health in a number of ways. Slavin et al. (1991) proposed that culturally-specific sources of stress may materialize in numerous and various ways. These manifestations may include stress arising from culturally specific events (e.g. bar mitzvahs, anniversaries of historical significance, or traumatic events, etc.) or from frequently being the only representative of one's group in some setting (e.g. a classroom, office, store, etc.). Culturally-specific sources of stress may also include stress arising from one's lack of access to political power, from cross cultural expectations, as well as from acts of racism

and discrimination, etc. McIntosh (2001) suggests that those in the majority frequently do not understand or actively discount the stressful nature of some of these events (e.g. being the “only one” of one’s race in some setting). Harrell (2000) agrees that perceptions of racism are often challenged by those in the majority, and members of nondominant groups are doubly victimized as their inability to offer proof of discrimination often implies oversensitivity, paranoia, hostility, etc. on their part.

Others have hypothesized that racism affects health in other more inconspicuous ways by influencing social determinants of health outcomes such as economic resources, access to economic opportunity, the availability and nature of health care, and “exposure to environmental contaminants” (Ryan et al., 2006, p. 116; Harrell et al., 2003). Such hypotheses are bolstered by studies demonstrating disproportionate job loss among African Americans (Meyer, 2003), wage discrimination (Darity, 2003), and racial and ethnic disparities in health care independent of variables such as insurance status, clinical appropriateness, or socioeconomic (SES) or treatment status (Ryn & Fu, 2003). These and other documented racial disparities among education, justice, housing, child welfare, and labor undoubtedly contribute to the cumulative life stress of members of affected groups (Ryn & Fu, 2003).

Types of Racism

One of the most obvious and frequently discussed types of race-related stress is that stress elicited by experiences of racism. Clark et al. (1999) defined racism as “beliefs, attitudes, institutional arrangements, and acts that tend to denigrate individuals or groups because of phenotypic characteristics or ethnic group affiliation” (p.805) thus encompassing both behavioral and attitudinal factors. Harrell (2000) proposed several

types of stress that arise from the experience of racism. These include specific racism-related life events (e.g. being passed over for a job or promotion, being hassled by the police, etc., because of one's race or ethnicity), vicarious racism experiences (i.e. experiences that have happened to family members, friends, etc.), as well as collective experiences (e.g. perceptions of racism to one's group collectively, regardless of personal experience). The manifestations of racism related stress also include experiences that are transmitted from one generation to another (e.g. the transgenerational effects of the experience of slavery, worldviews which reflect historical trauma, etc.), chronic contextual stress (i.e. stress resulting from political and social structure dynamics, etc.), as well as daily racism microstressors (Harrell, 2000).

Microstressors appear to be important to the study of racism and health as they represent the numerous, and daily, "subtle, innocuous, preconscious or unconscious putdowns" (Pierce, 1995, p. 281, as cited in Harrell, 2000) that members of nondominant groups face as reminders of the subordinate status assigned to them by society (Harrell, 2000). Examples of microstressors might include being followed in a store, overlooked while waiting in line, or mistaken for "the help" (Harrell, 2000). Pierce (1995) suggests that because microstressors happen so frequently, perhaps thousands of times in one's life time, one must out of necessity ignore them in order "to protect one's time, energy, sanity, or bodily integrity" (p. 282, as cited in Harrell, 2000). The accumulation of so many negative experiences undoubtedly adds to one's cumulative life stress with potentially serious effects on health. It may be through these numerous, subtle, and continuous experiences that the stress response and its physiological sequelae (i.e.

increased heart rate, blood pressure, etc.) are repeatedly activated among some individuals of color, subsequently leading to negative health outcomes.

Various potential connections between the experience of racism and health outcomes have been explored in an effort to understand the effects of racism on health. One niche of this line of research has attempted to integrate hypotheses concerning the detrimental health effects of racism with the burgeoning literature regarding the effect of stress on blood pressure and cardiovascular reactivity.

Racism, Blood Pressure, and Cardiovascular Reactivity

Researchers attempting to establish a link between the experience of racism and physiological well being have often attempted to examine the relationship of racism or discrimination to blood pressure and/or cardiovascular reactivity. This emphasis is partially due to widely documented disparities between the incidence of hypertension among African Americans and the White majority (CDC, 2004; Fang & Myers, 2001) which have failed to be explained by other factors such as socioeconomic status (Fang & Myers, 2001). Interestingly, this author was only able to identify a total of 3 studies examining the relationship between racism and blood pressure among Latinos, of which one of the studies did not actually measure racism but rather assumed its presence might explain any between group differences (Ryan et al., 2006; James, Lovato, & Khoo, 1994; 2003; Ready, 1985). Thus, the literature begs for more research exploring this overlooked population.

One way in which the experience of racism has been hypothesized to affect blood pressure concerns the body's need to compensate or make adjustments in the circulatory system for the increase in cardiac output elicited by mental stress (Carroll, 1992.). This

process may lead to prolonged periods of elevated blood pressure (Obrist, 1981, as cited in Gerin et al., 2000). Findings from some studies suggest that physiological set points are not unalterable, and that external stressors can effect permanent changes in physiological functioning (Harrell et al., 2003).

It has been hypothesized (Matthews, Gump, & Owens, 2001) that a relationship between racism and cardiovascular reactivity exists due to “sustained vigilance for possible threat” stemming from the need to repeatedly cope with an ongoing stressful condition (p. 404). Indeed, racism and discrimination have been shown to be correlated with psychological distress (Krieger et al., 2005; Stuber et al., 2003; Williams et al., 2003). It’s possible that the process of sustained vigilance may prime individuals to respond strongly to similar acute stressors in the future (Matthews et al., 2001). This notion has been supported by some research indicating heightened responses to acute stressors in the context of other important background stressors (Matthews et al., 2001).

Researchers attempting to establish a link between racism and/or blood pressure and cardiovascular reactivity have utilized several methodologies. These strategies can be separated into two broad categories including survey methods and experimental laboratory studies (Harrell et al., 2003).

Survey Studies of Racism and Blood Pressure

Survey studies have generally focused on participant’s perceptions of racism, frequently attempting to correlate them with participant reports of physical health including blood pressure and hypertension or with measures of blood pressure taken at the time of the study (Brondolo et al., 2003; Harrell et al., 2003). It is important to note here that the majority of research in this area has turned to the study of “perceived”

racism as opposed to the measurement of actual occurrences of racism. This is due in part to the obvious extreme logistical difficulty in attempting to measure actual occurrences of racism in a real life setting. This measurement difficulty does not present a challenge however, as the stress literature suggests that one's appraisal of an event as stressful or demanding, rather than the objective nature of an event is what is responsible for the activation of the stress response (Slavin et al., 1991).

While a majority of findings from survey studies support a connection between exposure to racism and increased blood pressure or hypertension, findings are complicated by a host of methodological issues, and are at best mixed (Brondolo et al., 2003; Harrell et al., 2003). Several studies have reported significant positive relationships between racism and blood pressure (Guyll et al., 2001; Williams et al., 2003) and others no relationship (Harrell et al., 2003). Still others, have reported an inverse correlation between exposure to racism and blood pressure, with those reporting no experience of racism demonstrating the highest blood pressure measurements (Harrell et al., 2003; Krieger, 1990).

Confounding Variables. There may be several explanations for the mixed findings. First, some studies reporting confounding results have relied on self-report measures of health, blood pressure, and/or hypertension (Brondolo et al., 2003; Krieger, 1990). This is important to note due to the fact that it is estimated that more than 31% of those with high blood pressure do not know that they are hypertensive (CDC, 2004; AHA, 2004). Such a high disparity between self-reports and actual health status would certainly introduce vast measurement error into study results.

A second source of confusion also results from measurement error. Brondolo et al. (2003), in a review of measures of racism employed in such studies, indicated that many of the instruments used to measure perceived racism have relied on too few items and were not proven to be psychometrically sound. This is important to note as racism and discrimination are thought to be phenomena widely experienced by members of minority groups. Relying on too few items in attempting to detect within-group differences would prove subtle variations in frequency and intensity of experience elusive to detection. The problematic measurement of perceived racism could easily prove definitive within-group conclusions elusive. A number of new instruments (e.g. The Perceived Racism Scale, The Schedule of Racist Events) permit more reliable and psychometrically sound measurement of perceived racism (Brondolo et al., 2003) and should be included in future studies.

Other sources of confusion in racism research concern the effects of coping and personality variables on the relationship between racism and health. Several researchers (Harrell et al., 2003; Brondolo et al., 2003; Williams et al., 2003) have indicated the need for coping and personality variables to be included in the study of racism. Coping strategy refers to the cognitive and behavioral strategies that individuals employ to cope with events perceived as being stressful or demanding. Specific research regarding coping strategies will be discussed more extensively in a later section.

Personality variables such as neuroticism, trait-anxiety, trait-anger, and negative affectivity have also been singled out due to their proposed ability to maximize or minimize self-reports of stress or exposure to racism (Harrell et al., 2003; Brondolo et al., 2003; Williams et al., 2003) as well as potentially increase one's sensitivity to racism by

increasing one's proclivity to interpret situations as threatening and/or racist (Brondolo et al, 2003). Research pertinent to the relationship between personality variables and perceived racism and blood pressure will be discussed more extensively later. Future studies accounting for personality variables would provide a more clear and concise understanding of racism's effects on health.

This proposed study would extend this line of research by utilizing blood pressure readings taken during the course of the study. Likewise, this proposed study would utilize measures of perceived racism that have demonstrated reliability, which address a wide array of domains, and which are sufficiently sensitive to detect subtle within-group differences regarding the experience of perceived racism. Further, this study proposes to control for coping strategy, neuroticism, and negative affectivity, important coping and personality variables thought to be active in this relationship. This will be done utilizing psychometrically sound instruments which have not previously been employed in similar research.

Experimental Studies of Racism and Cardiovascular Reactivity

In the second broad category of research in this area, experimental laboratory studies, attempts are made to develop laboratory analogues of racism and then measure physiological activity in response to these stimuli. Often the analogues developed include racially charged video stimuli, speech tasks in which a participant is asked to speak about personal experience with racism, or debate tasks in which participants are asked to debate issues of racism (Harrell et al., 2003, Brondolo et al., 2003). While survey studies possess the methodological advantage of attempting to measure the relationship of racism and

health in the real world, laboratory studies are advantageous in that they allow causal inferences to be made.

Generally speaking, experimental laboratory studies have been successful in demonstrating that exposure to racially charged stimuli elicits cardiovascular reactivity as does exposure to other stressful stimuli (Harrell et al., 2003). While a small majority of studies have demonstrated greater reactivity in response to racial stressors than non-race related stimuli, others have not, leaving it unclear as to whether racism elicits stronger physiological reactions than other stressful material (Brondolo et al., 2003; Harrell et al., 2003). Research indicating greater activity in response to racism would be important in implicating the particularly detrimental effects of racism on blood pressure (Brondolo et al., 2003).

Likewise, research seems to indicate greater cardiovascular reactivity among African Americans when exposed to racism than among their White counterparts (Brondolo et al., 2003). Such findings are consistent with “sustained vigilance” hypotheses that the need to cope with ongoing and important stressors primes individuals to respond strongly to similar stressors in the future (Matthews et al., 2001). Several studies however, have reported conflicting results that appear to be due to the effects of coping style in the relationship between experimental stressors and cardiovascular reactivity. Coping and its effects will be treated more specifically and extensively under the section entitled Coping and Racism.

Limitations of Stress and Cardiovascular Reactivity Studies. One limitation frequently observed in analogue studies comparing exposure to racial stressors vs. nonracial stressors involves the nonparallel nature of the stimulus materials created or

chosen for the two conditions. Often, the stimuli which are chosen for the two conditions differ on significant features other than the racial aspect which researchers are intending to measure. This methodological discrepancy introduces the possibility that something besides the effect of the racial vs. nonracial nature of the stimuli is being measured (e.g. intensity of the interaction, complexity of the interpersonal reaction, etc.). This is compounded by the fact that stimulus materials have sometimes been excerpted from popular films, thus creating the potential to elicit different emotions in those participants familiar with the films than in those that are not. Such was the case with Fang and Myers (2001) which subsequently did not detect a difference in cardiovascular reactivity between racial and nonracial stressor conditions.

One question left unanswered by previous research concerns the effect of covert or subtle forms of racism on health. Williams et al. (2003) observed that “major acute experiences of racism bias are the most commonly assessed type” of experience (p. 202). Some research has subsequently supported the hypothesis that subtle forms of discrimination may elicit a greater stress response than more blatant discrimination (Guyll et al., 2001). This has been hypothesized to be due to the ambiguity of such a situation, in which case an individual may be left in a no win situation and unable to choose an effective coping response (Guyll et al., 2001).

Knowledge about the effect of more subtle forms of racism becomes increasingly important in light of the fact that while major racism-related life events may occur infrequently for any one individual, daily racism microstressors have been hypothesized to occur possibly thousands of times in the life of individuals of color, presumably contributing a great deal over the life span to the accumulated stress of that individual

(Harrell, 2000). It is important that future research involving the health effects of racism explore this important variable.

Finally, research examining the effects of racism on members of other minority groups is needed (Harrell et al., 2003; Brondolo et al., 2003; Williams et al., 2003). To date, very few racism and health studies have explored this relationship among Latinos (Moradi & Risco, 2006; Ryan et al., 2006; Krieger et al., 2005; Finch & Vega, 2003; Stuber et al., 2003; Ready, 1985). The almost exclusive focus in the literature on African Americans is understandable in light of the disparity in hypertension rates between African Americans and the white majority (CDC, 2006). However, it is important to remember that heart disease, of which hypertension is a part, also continues to be the number one killer among Hispanics, and Native Americans, and is a very close second among Asians and Pacific Islanders in the United States (Smith & Heron, 2007). While the disparity in rates of hypertension between these groups and the majority are not as pronounced (CDC, 2004) it is possible that accumulated stress due to racism is a significant factor in disease etiology for these groups.

Exploring the subtleties of the proposed relationship between perceived racism and health outcomes is proving to be a process. This is to be expected as the relationship between mental or emotional stress and negative health outcomes is understandably dynamic and complex as it involves the interplay between numerous psychological and biological mechanisms. The observation that virtually everyone experiences emotional and psychological life-stress and yet not everyone suffers from hypertension and heart disease is testament to the complexity of this relationship.

Further, as discussed it has been hypothesized that individuals of color experience potentially thousands of racial microstressors over a lifetime (Pierce, 1995, as cited in Harrell, 2000) and yet the majority of these individuals will not suffer from hypertension or heart disease. This lack of a perfect linear correlation suggests that other important variables are also active in this relationship. At least some of this complexity is likely due to powerful coping and personality variables that influence how individuals interpret, react, and respond to racial stressors. Literature concerning how coping and personality may buffer or exacerbate the stress response will be discussed in the following sections.

Coping and Racism

Coping response is generally thought to be one of the single most important factors influencing the relationship between racism and health outcomes. In order to understand how coping relates specifically to racism however, it is first necessary to understand more general aspects of the coping literature. Current understandings of coping research as well as specific applications of that research to racism will be discussed.

General Coping Literature

The literature suggests that stress makes a significant contribution to both physical and mental health outcomes, including conditions such as depression and anxiety and other measures of health (McCarthy, Lambert, Beard, Dematitis, 2002; in Gates, 2005; Krantz, & McCeney, 2002). It is also clear that coping plays a significant role in how individuals respond and react to stressful or negative life events (Parker & Endler, 1992). Folkman and Lazarus (1985; as cited in Endler & Parker, 1990b) suggest

two major functions of coping including (1) doing something to change the problematic situation for the better and (2) regulating distressing emotions.

Zeidner and Saklofske (1996, in Zeidner & Endler, 1996) suggest several criteria upon which effective or adaptive coping responses could be judged. They indicate that factors such as “resolution of the conflict or stressful situation,” “reduction of physiological and biochemical reactions,” the “reduction of psychological distress,” and “normative social functioning” are important criteria to take into account when judging the efficacy of coping efforts (Zeidner and Saklofske, 1996, p. 508; in Zeidner & Endler, 1996). Other criteria they suggest include the “return to prestress activities,” the “well-being of self and others affected by the situation,” the maintenance of positive self-esteem as well as the perception that one’s coping strategies (i.e. behavioral and cognitive methods employed to cope with stressful situations) are effective (Zeidner and Saklofske, 1996, p. 508; in Zeidner & Endler, 1996). Other researchers have recently focused on the potential for coping to be preventative rather merely reactive to stressful situations (McCarthy et al., 2002; in Gates, 2005).

A number of researchers have endeavored to distil the various modes and methods of coping responses (Parker & Endler, 1992). These attempts have generated theoretical constructs composed of as few as two coping factors (i.e. problem-focused and emotion-focused) (Folkman & Lazarus, 1980; as cited in Parker & Endler, 1992) to as many as eight or more (i.e. problem-focused, wishful thinking, distancing, seeking social support, etc.) (Folkman & Lazarus, 1985; as cited in Parker & Endler, 1992). There appears to be a great deal of overlap amongst these various constructs (Parker & Endler, 1992).

One important point however, surrounding which some consensus has been garnered in the literature, is the important distinction between problem-focused and emotion-focused coping (Endler & Parker, 1990b). Accordingly, most coping scales attempt to assess these two variables (Endler & Parker, 1990b). One current theory, supported by factor analytic studies suggests a three factor model of coping (Zeidner and Saklofske, 1996; in Zeidner & Endler, 1996; Endler and Parker, 1990b). This theory postulates three basic coping strategies including task-oriented, emotion-oriented, and avoidance coping strategies (Endler & Parker, 1994).

Task-oriented or problem focused coping is representative of active strategies used to solve one's problem, improve the situation, cognitively restructure one's perception of the situation, or planning efforts to solve the problem (Carson, Butcher, & Mineka, 2000). Emotion-focused coping strategies involve self-focused efforts to reduce stress and regulate affect and entail such behaviors as self-preoccupation or fantasy (Parker & Endler, 1996; in Zeidner & Endler, 1996). A third coping strategy, avoidance coping, continues to gain increasing attention in the literature and involves both task (i.e. engaging in a substitute activity rather than dealing with the problem) and socially-oriented (e.g. social diversion) means to avoid a stressful situation (Parker & Endler, 1996; in Zeidner & Endler, 1996).

Important research has recently suggested connections between coping strategies employed by individuals and corresponding adaptive or maladaptive outcomes. For example, among Israeli combat veterans emotion-focused coping was positively related to severity of posttraumatic stress disorder (PTSD) while problem-focused coping was inversely related to PTSD severity (Zeidner and Saklofske, 1996; in Zeidner & Endler,

1996). Similarly, among Israelis exposed to missile attacks during the Persian Gulf War, emotion-focused coping was predictive of PTSD severity, bodily symptoms, and anxiety (Zeidner and Saklofske, 1996; in Zeidner & Endler, 1999). Research studies surrounding avoidance coping generally suggest that it is correlated with concurrent distress (Zeidner and Saklofske, 1996; in Zeidner & Endler, 1996).

While research seems to indicate that task-oriented coping is highly effective in reducing stress and that negative outcomes are frequently connected to emotion and avoidance coping, the evidence is not entirely clear (Zeidner and Saklofske, 1996; in Zeidner & Endler, 1996). Some evidence indicates that avoidance coping in the form of cognitive avoidance may at times be adaptive in helping individuals obtain a break from the relentless pressure of short-term stressors (Zeidner and Saklofske, 1996; in Zeidner & Endler, 1996). Similarly, some research suggests that emotion-focused coping may be adaptive and provide relief in situations in which an individual has little or no control over the outcome (Zeidner and Saklofske, 1996; in Zeidner & Endler, 1996). These subtle contextual factors may prove to be important to the study of racism and stress in the future as racism can conceivably be argued to be a chronic stressor over which individuals may at times feel they have little control.

Racism Specific Coping Literature

As stated previously, coping response is thought to be one of the most influential variables affecting the relationship between racism and health outcomes, and may be responsible for some of the inverse findings between exposure to racism and blood pressure discussed earlier. The findings of several research studies of the effects of racism, using both survey and laboratory research paradigms, seem to hinge on the

effects of coping. Williams et al. (2003) reported that passive forms of coping with discrimination have been linked with increased distress, and more negative measures of well-being in African Americans.

Noh and Kaspar (2003) reported that among Korean immigrants in Canada, problem-focused coping strategies appeared to be more effective in reducing the impact of perceived discrimination on depression. It has been suggested that chronic perceptions of racism coupled with passive coping responses may lead to prolonged activation of the sympathetic nervous system functioning, resulting in higher resting systolic blood pressure levels (Clark et al., 1999).

Krieger and Sidney (1996) reported finding that African Americans who reported typically accepting unfair treatment had blood pressure readings about 7 mmHg higher than those who reported typically challenging unfair treatment. These findings seem to be consistent with the general coping literature which indicates that negative health outcomes are associated with passive coping methods (e.g. emotional-oriented strategies, avoidant coping strategies) while more active or task-oriented coping strategies are negatively correlated with poor health outcomes (Endler & Parker, 1994).

In another study Krieger (1990) reported that risk of high blood pressure was 2.6 times greater among African Americans reporting zero experiences of race or gender biased treatment. It is difficult to imagine, given the hypotheses presented earlier concerning the frequent nature of racism microstressors (Harrell, 2000), that some participants had completely escaped any such experiences. A more tenable explanation of this finding, taking into account coping strategies, might suggest that such individuals relied on avoidant coping strategies. In fact Krieger and Sydney (1996) interpreted these

earlier findings in such a way, suggesting that these participants coped with experiences of racism through denial and anger suppression, concluding that the influences of coping complicate the relationship of racism and blood pressure.

Ryan et al. (2006) recently published one of the very few studies exploring racism and blood pressure among Latinos. In this study they report a significant relationship between racism and systolic blood pressure such that some participants reporting the least amount of experience of racial discrimination had the highest blood pressure (Ryan et al., 2006). This finding is of course consistent with the Krieger and Sidney (1996) and other studies suggesting that some individuals cope with racism through denial or avoidant types of coping and that these may play an important role in this relationship between racism, stress, and blood pressure.

Research in fact suggests that individuals are often reluctant to report having been a victim of any type as victimization is frequently associated with feelings of loss of control (Taylor, Ruggiero, & Louis, 1996). It seems apparent that a variety of personal factors, such as the use of avoidant coping strategies, may affect individual's tendency to under or over-report exposure to racism (Brondolo et al., 2003). These will be discussed more extensively in a following section.

While some studies seem to offer strong support for the influence of coping strategy on the effects of racism, others have found no effects of coping (Broman, 1996) or have found cardiovascular reactivity to be associated with both task-oriented and passive coping strategies (Clark & Anderson, 2001). Still, others have reported that cardiovascular reactivity was associated with measures of task-oriented coping (James, LaCroix, Kleinbaum, & Strogatz, 1984).

Some of the confusion can be accounted for by the infrequent use of robust and psychometrically sound coping measures. It is expected that future studies designed to understand the influences of coping strategy on racism and blood pressure, utilizing psychometrically sound instruments, will report findings similar to those of Krieger (1990) and Krieger and Sidney (1996) in which responses to racism mirrored those of the general coping literature with regard to coping style. Brondolo et al. (2003) concluded that further studies involving coping style and perceived racism are necessary to untangle this relationship.

Personality Variables and Perceived Racism

Next to coping, individual personality traits are thought to be the most likely confounding variables in previous racism and health research (Williams et al., 2003, Brondolo et al., 2003). However, it is currently unknown how individual characteristics may modify the effects of perceived racism on health (Williams et al., 2003). It is hypothesized that personality variables may affect the relationship between perceived racism and health in any of several ways.

One potential scenario is that certain personality traits may cause individuals to be more sensitive to stressful experiences by increasing one's appraisal of stressful experiences (Williams et al., 2003) or by decreasing one's perception of his or her ability to cope with a given stressor. These scenarios may lead to both increased reports of perceived racism as well as an increase in negative health outcomes associated with exposure to stress. It is also possible that some personality characteristics may cause individuals to maximize reports of stress and yet be unrelated to actual health outcomes. Each of these possible scenarios will be discussed in light of pertinent research.

Currently, there has been little consensus about what specific personality traits may be most likely to influence the racism-health relationship and should therefore be included in future research (Williams et al., 2003). However, based on previous studies in other areas, researchers have posited several variables which may be the most promising to explore in future racism and health studies. Some of these variables include a personal propensity toward defensiveness or denial, negative affectivity, trait anxiety, as well as trait anger (Brondolo et al., 2003). Others have also proposed characteristics such as neuroticism, social desirability (Williams et al., 2003), hostility, as well as concepts such as racial or cultural identity (Harrell et al., 2003).

As mentioned earlier, it is hypothesized that some variables such as a tendency toward denial and defensiveness would lead to minimized self-reports of perceived racism (Nyklicek, Vingerhoets, Van Heck & Van Limpt, 1998). Nyklicek et al. (1998) reported that among a sample of 396 participants in the Netherlands, defensiveness was a significant predictor of decreased self-reports of daily hassles. As discussed earlier, Krieger (1990) also hypothesized that denial or avoidant coping strategies lead to the minimization of self-reports of perceived racism. It is anticipated that the inclusion of coping measures designed to capture tendency toward denial and avoidance would serve to illuminate future racism and health research.

Alternatively, other measures such as negative affectivity, trait anxiety (Watson & Pennebaker, 1989), and neuroticism (Costa & McRae, 1987) have been reported to be associated with increased self-reports across a variety of stress and non-stress related symptoms. For example, Watson and Pennebaker (1989) reported that negative affectivity was strongly and consistently correlated with heightened reports of health

complaints across a variety of measures and samples. Thus the authors concluded that self-report stress as well as self-report health measures include a substantial negative affectivity component. Interestingly, they report that although negative affectivity was related to the maximization of self-reported health complaints, it was unrelated to actual long-term health status (Watson & Pennebaker, 1989), providing support for the hypothesis that some personality variables may be related to self-reports but unrelated to actual health status. Based upon this previous research it is possible that heightened negative affectivity may also lead to the maximization of self-reports of stressful experiences of perceived racism.

Finally, it has been proposed that trait anger may increase one's sensitivity to racism and thus may also be related to the maximization of self-reports of perceived racism. Fang and Myers (2001) reported support for this hypothesis. The authors found that when exposed to racist stimuli, high hostility was one predictor of higher recovery systolic and diastolic blood pressure levels. Thus, among African American men, particularly those high in hostility, it appears that the effects of exposure to stress-provoking racist stimuli on cardiovascular reactivity can persist long after the termination of the stressor (Fang and Myers, 2001). These findings garner support for the notion that hostility may be one variable that moderates, mediates, or adds to the relationship between perceived-racism and corresponding blood pressure levels.

It has been proposed by some researchers that several of the variables discussed are facets of one construct and are synonymous with one another (Watson & Pennebaker, 1989). Costa and McRae (1987) have defined neuroticism as "a broad dimension of individual differences in the tendency to experience negative, distressing emotions and to

possess associated behavioral and cognitive traits” (p. 300). The authors further indicate that “neuroticism refers to a chronic condition of irritability and distress-proneness which is relatively independent of objective conditions” (Costa & McRae, 1987, p. 302). Watson and Pennebaker (1989) argue that the central component of neuroticism is defined by “individual differences in the tendency to experience negative emotional states” (p. 2).

Watson and Pennebaker (1989) further argue that neuroticism, trait anxiety, and general maladjustment, as termed by other researchers, are in reality one central construct which they refer to as negative affectivity. They thus propose that negative affectivity is a “diffuse, nonspecific, measure of subjective distress and dissatisfaction that exerts a pervasive influence in self-report personality assessment” (Watson and Pennebaker, 1989, p. 5). Currently, a number of instruments exist which purportedly measure negative affectivity or neuroticism, such as the NEO PI-R, the State-Trait Anxiety Inventory A-Trait scale, the Multidimensional Personality Questionnaire, the Positive and Negative Affect Schedule (PANAS), etc. (Watson & Pennebaker, 1989). Individuals scoring high on these scales typically endorse items describing themselves as irritable, socially anxious, nervous, fearful, helpless, overly emotionally sensitive as well as emotionally labile (Watson & Pennebaker, 1989).

Negative affectivity can also be measured either as a trait or as a state. Longitudinal studies (Costa & McRae, 1987) suggest that neuroticism or trait negative affectivity is relatively stable over the lifespan. Likewise, previous research linking negative affectivity or neuroticism to maximized self-reports on health measures suggests that both state and trait negative affectivity are predictive of maximized self-reports on

health questionnaires (Watson & Pennebaker, 1989). Watson and Pennebaker (1989) conclude that the link between state negative affectivity and maximized self-reports reflects the stable influence of trait negative affectivity.

Research has also explored the possibility that trait negative affectivity is directly related to the increased occurrence of a variety of diseases and illness. For example, it has been reported that while trait negative affectivity is moderately related to subjective symptoms of coronary heart disease such as angina, it is largely unrelated to objective measures of coronary heart disease (Watson & Pennebaker, 1989). However, definitive conclusions are precluded by some studies in which cardiac patients have been shown to have slightly lower premorbid negative affectivity scores (Watson & Pennebaker, 1989). One possible explanation to these counter-intuitive results is a propensity for individuals high in negative affectivity to respond defensively and thus score artificially low on measures of negative affectivity.

Attempts have also been made to correlate negative affectivity directly with hypertension. The majority of these studies have been inconsistent with some reporting no relationship, others reporting a small but significant positive relationship, and still others reporting a negative relationship (Watson & Pennebaker, 1989). Watson & Pennebaker (1989) report that they generally found that trait negative affectivity was unrelated to blood pressure levels or variability across multiple populations. They do however, call attention to the few intuitively peculiar instances in which they also found a small but significant inverse relationship between trait negative affectivity and blood pressure. Again, one explanation may be a tendency for those actually high in trait

negative affectivity to respond defensively or avoid endorsing self-report options which may be perceived as socially undesirable.

Currently the nature of the relationship between exposure to stress, personality characteristics, and self-reports of distress is unknown and has been the source of considerable discussion (Lazarus, 2000). As has been demonstrated, numerous personality variables have been hypothesized to affect the stress-health relationship either by directly affecting disease pathogenesis or by serving to maximize or minimize subjective perceptions of distress and illness. Future research which seeks to isolate the specific effects of personality variables on the relationship between stress-associated with perceived racism and health outcomes will begin to propel this area of research to the next level of understanding.

Purpose of Proposed Research Study

There are several important purposes for this proposed study which is intended to extend the scientific understanding of the relationship between perceived racism, and blood pressure, perceived stress, and symptoms of distress. First, this study is intended to test hypotheses regarding coping and personality variables, about which it has been proposed may contribute to increased or decreased self-reports of perceived racism. Second, it is designed to explore any predictive relationship between perceived racism and blood pressure, symptoms of distress, and perceived stress among Latina/o women and men after controlling for variance associated with other important and potentially confounding coping and personality predictors.

This study makes several important improvements upon, and extensions to, previous research in this area. One primary improvement of this study is the fact that

these variables are being explored among Latina/o women and men, a population that has largely been left unexamined with regard to the mental and physiological effects of the experience of racism. Second, this study is intended to appropriately measure and control for variance associated with coping and personality variables that have been thought to be confounding factors in previous research exploring the relationship between perceived racism, blood pressure, and mental health. To this end, task-focused coping, emotion-focused coping, avoidant coping, neuroticism, and negative affectivity will be measured and considered as variables potentially influencing the relationship between perceived racism and symptoms of stress. Finally, this study seeks to improve upon previous research by employing a more extensive and psychometrically sound measure of perceived racism intended to successfully differentiate between subtle within-group differences in the experience of perceived racism.

Chapter Three

Methodology

Participants

Participants in this study included 151 (105 female, 46 male) Latina/o undergraduate and graduate students at the University of Texas at Austin. Seventy seven of these participants were drawn from the Educational Psychology subject pool. The remainder of the participants (n=74) responded to email solicitations directed through undergraduate and graduate academic programs, colleges, and multicultural and social organizations affiliated with the university as well as to flyers posted generally across the campus. All participants included in the study indicated that they identified as being Latina/o or Hispanic.

Participants ranged in age from 18 to 54 with an average age of 22.89 years. Eighty point eight percent (n=122) of participants indicated they were undergraduate students while the remaining 19.2% (n=29) indicated they were graduate students. In addition 86.1% (n=130) of participants reported that they had been born in the United States while the remaining 13.9% (n=21) stated that they had been born outside of the United States. Of those foreign born, the average length of time they had lived in the United States was 12.99 years.

Sixty eight percent (n=103) of participants indicated that they could trace their ancestry to Mexico. An additional 10.6% (n=16) traced their ancestry to Spain, 7.9% (n=12) to the United States, and 4.0% (n= 6) to both Mexico and Spain. The remaining 9% (n=14) of the participants indicated that they traced their ancestry to Cuba, Puerto

Rico, Peru, Costa Rica, Bolivia, Honduras, Argentina, Paraguay, El Salvador, and Columbia.

In addition to indicating whether individuals identified as being Latina/o or Hispanic, participants were asked to indicate their racial background. Twenty seven point eight percent (n=42) stated that they considered themselves to be Latina/o of White descent, 31.8% (n=48) Latina/o of Latin American Indian descent, 32.5% (n=49) mixed race, while 7.9% (n=12) indicated “other” racial descent. It was notable that no participants indicated being of Black or African descent.

Blood Pressure Apparatus

Systolic (SBP) and diastolic (DBP) blood pressure readings were measured using a Microlife® Premium Advanced Blood Pressure Monitor which employs the oscillometric method of blood pressure measurement. Readings were taken using a standard cuff placed on participant’s nondominant arm. Reliability of this instrument has been reported by the manufacturer to be within +/- 3mmHg (Microlife, 2005). In addition, recent research suggests that fully automated oscillometric blood pressure monitoring devices are equally reliable in predicting ambulatory blood pressure (thought to be a superior measure of one’s overall blood pressure) as are calibrated aneroid sphygmomanometers employed by carefully trained users (Stergiou, Voutsas, Achimastos, & Mountokalakis, 1997).

Measures

In order to ascertain information concerning the relationship between perceived racism, coping style, neuroticism, and negative affectivity, a number of instruments were utilized. First, in order to appropriately identify the demographics of the sample of

participants in this study, a demographic questionnaire was created to collect basic information (e.g. age, sex, etc.) as well as information pertinent to this study (e.g. smoking status, ethnic and racial background, etc.). To obtain information about participant's preferred coping styles the Coping Inventory for Stressful Situations (CISS) was employed. The Perceived Racism Scale for Latina/os (PRSL) was utilized to measure participant's previous exposure to racism/discrimination while the Revised NEO Personality Inventory (NEO PI-R) was used to measure neuroticism. The Positive and Negative Affect Schedule (PANAS) was utilized to obtain measurements of participant's levels of state negative affectivity. Measures of systolic (SBP) and diastolic (DBP) blood pressure were utilized to measure the relationship between the independent variables and participant's physiological well-being. The Hopkins Symptoms Checklist (HSCL-21) and the Perceived Stress Scale (PSS) were also employed to measure the relationships between the independent variables and reports of symptoms of distress and perceived stress respectively.

Demographic Questionnaire

A basic demographic questionnaire was created to collect participant information pertinent to this study (see appendix A). This questionnaire included 15 items that gathered various information regarding age, gender, student status, household income, as well as ethnic and racial background, time in the United States if born elsewhere, health behaviors, and health history, etc. These items were composed of fill in the blank and multiple choice items, as well as some items in which short explanations of participant's answers were requested.

Coping Style

The Coping Inventory for Stressful Situations (Endler & Parker, 1990a) is a 48-item self-report measure designed to assess individual's preferred and most frequently utilized coping strategies. Respondents rate each of the 48 items along a five-point Likert-type scale with response options ranging from "not at all" to "very much." Respondents are asked to "indicate how much [he/she] engage[s] in these types of activities when [he/she] encounters a difficult, stressful, or upsetting situation" (Endler & Parker, 1990a, p. 8).

The CISS contains three scales, including "Task," "Emotion," and "Avoidance," each designed to measure the degree to which respondents engage in each of these three coping dimensions (Endler & Parker, 1993; Endler & Parker, 1990a). In addition, the Avoidance Coping scale is comprised of two subscales including Distraction and Social Diversion that further measure these two purported subtypes of avoidance coping (Endler & Parker, 1994).

Endler and Parker (1994) performed a factor analysis with CISS data from 832 university students and reported finding strong evidence of a three factor coping model. Factor loadings ranged from .40 to .74 for the items of the three scales. Internal alpha reliabilities ranged from .83 to .90 for females suggesting high reliability (Endler & Parker, 1994). Test retest correlations in a sample of 238 undergraduates at 6 weeks were found to be .73, .68, and .55 for the Task-oriented coping, Emotion-oriented coping, and Avoidance scales respectively (Endler & Parker, 1993; in Van Heck, Bonaiuto, Deary, & Nowack, 1993). In this present study, Cronbach's alpha coefficients were .86 for the Task-Focused Coping scale, .86 for the Emotion-Focused Coping scale, and also .86 for

the Avoidance Coping scale. Cronbach's alpha coefficients for the Social Diversion and Distraction subscales in this study were .82 and .80 respectively.

Construct validity of the CISS was assessed by comparing it with two other measures of coping styles and with various measures of psychopathology. A moderate positive correlation was reported between subscales of the CISS and the Coping Strategy Indicator (CSI) and between subscales of the CISS and the Defense Style Questionnaire (DSQ) (Endler & Parker, 1994). In addition, a positive relationship was reported between emotion-oriented coping and various measures of psychopathology while a negative relationship was reported between task coping and some of the measures of psychopathology (Endler & Parker, 1994). These studies taken together, suggest good construct validity of the CISS.

Perceived Racism

The Perceived Racism Scale (PRS) (McNeilly, Anderson, Armstead et al., 1996) was designed to measure African American's experience of White racism over the life span. It is designed to assess not only the frequency of one's experiences across several domains (e.g. individual, attitudinal, institutional, behavioral and cultural), but also associated coping behaviors, cognitive appraisals of the experience, as well as associated emotions (Utsey, 1998).

The PRS is a 51-item factor-analytically derived questionnaire in which respondents indicate their answers on a 6-point Likert-type scale (Utsey, 1998). During this study, only the frequency of exposure to racist events subscale, or the first 34 items (Utsey, 1998) will be utilized. For the purposes of this study the Perceived Racism Scale

for Latina/os (PRSL) (Collado-Proctor, 1999), a Latina/o-specific alternative version of the PRS will be employed.

With respect to the psychometric properties of the PRSL, Cronbach's alpha coefficient for the frequency of exposure items was reported to be .93 (Collado-Proctor, 1999). In this present study Cronbach's alpha coefficient for the frequency of exposure items was .91. Cronbach's alpha coefficients for the individual subscales of the frequency of exposure items in this study were .79 (Racism on the Job), .75 (Racism in Academic Settings), .35 (Racism in Public Settings), .55 (Racism in Health Care Settings), and .87 (Racism in General Settings). Test-retest coefficients for the frequency of exposure items were reported to range from .92 to .98 (Collado-Proctor, 1999). The measure was also reported to be significantly positively correlated with other measures of racism in a separate study in which discriminant, convergent, and concurrent validity properties of the PRS were assessed (Utsey, 1998).

Neuroticism

The Revised NEO Personality Inventory (NEO PI-R; see appendix B) (Costa & McCrae, 1992a) was chosen to help measure the influence of neuroticism in the relationship between perceived racism and corresponding blood pressure levels. The NEO PI-R is a 240-item questionnaire designed to assess individuals along the five factor model of personality (i.e. neuroticism, extraversion, openness to experience, agreeableness and conscientiousness) (Costa & McCrae, 1995). Each of the five domain subscales of the NEO PI-R is composed of six facets. During this study only the Neuroticism scale will be utilized. The six individual facets of the Neuroticism scale

include Anxiety, Angry Hostility, Depression, Self-Consciousness, Impulsiveness, and Vulnerability (Costa & McCrae, 1995).

Test retest reliability coefficients for the domain scores of the NEO PI-R were reported to range from .86 to .91, while internal consistency for the facet scores ranged from .56 to .81 (Rose, Murphy, Byard, & Nikzad, 2002). Cronbach's alpha coefficient for the Neuroticism scale in this study was .92. In addition, Cronbach's alpha coefficients for the individual facet scales in this study were .75 (Anxiety), .79 (Angry Hostility), .84 (Depression), .71 (Self-Consciousness), .60 (Impulsiveness), and .79 (Vulnerability). Kurtz and Parrish (2001) reported test-retest reliability coefficients ranging from .91 to .94 for the Neuroticism scale. In addition, validity studies have demonstrated significant correlations between the NEO PI-R and Wiggins's Revised Interpersonal Adjective Scales-Big Five Version (IASR-B5), with correlations ranging from .70 to .78. Correlations with Goldberg's Transparent Trait Rating Form (TTRF) ranged from .45 to .77 (Costa & McCrae, 1995).

The norming sample for the NEO PI-R included 500 men and 500 women between the ages of 21 and 96 which were chosen to match the figures of the 1995 U.S. census (Costa & McCrae, 1992b). The NEO PI-R has also been utilized successfully among college students and has been found to demonstrate the same factor structure among White as well as non-White respondents (Costa & McCrae, 1992b).

State Negative Affectivity

In order to measure and control for the effects of state negative affectivity in this study, the Positive and Negative Affect Schedule (PANAS) was employed (Watson, Clark, & Tellegen, 1988). The PANAS is a 20-item questionnaire designed to assess

respondents with respect to the constructs of positive and negative affectivity. The measure contains 2, 10-item scales (i.e. Positive Affectivity and Negative Affectivity) on which individuals respond on a 5-point Likert-type scale regarding their experience. In this study, while individuals were administered all 20 items, only the 10-item Negative Affectivity scale was included in the analyses (Watson et al., 1988).

The intent of the authors in developing the PANAS was to construct a brief measure that consisted of relatively pure indicators of the positive and negative affectivity constructs. Based upon previous research, a principal-components analysis, and reliability analyses, the authors identified 5 categories of negative affective states that would be included on the Negative Affectivity scale including “distressed,” “angry,” “fearful,” “guilty,” and “jittery.” Subsequently, 2 descriptors for each of these states were included on the Negative Affectivity scale, for a total of 10 items. The scale is also constructed such that researchers can determine what time frame they would like respondents to reference with regard to their affect. These instructional options range from “right now” in the moment to “generally.” In this study the “right now” in the moment instructions were used (Watson et al., 1988).

The authors gathered psychometric data on the PANAS from undergraduate students, university employees, and a sample of adults not affiliated with the university, in total numbering 660 individuals with regard to the “right now” in the moment instructions. Cronbach’s alpha coefficient for the PANAS Negative Affectivity scale was reported to be .85 suggesting good internal reliability of the items (Watson et al., 1988). Cronbach’s alpha coefficient for the Negative Affectivity scale was .76 in this study. The authors also report that regarding comparison with 3 other brief measures of negative

affect, convergent correlations for the PANAS negative affectivity scale ranged from .81 to .92 (Watson et al., 1988).

In addition, test-retest reliability analyses were conducted among 101 undergraduate students after an 8-week interval. The authors report the test-retest reliability coefficient to be .45 for the “right now” instructions. Furthermore, the authors note that in every temporal condition of the instructions the PANAS demonstrated notable stability. They indicate that these results are consistent with previous research suggesting that there is a “strong dispositional component of affect” or that even fluctuating mood states are in large part reflections of the nature of one’s affective tendencies (Watson et al., 1988, p. 1065).

Symptoms of Distress

The Hopkins Symptom Checklist-21 (HSCL) is a 21-item inventory designed to measure symptoms of distress. On this checklist, individuals are asked to describe how they have felt over the past 7 days. Responses are indicated on a 4-point Likert-type scale and may range from “not at all” to “extremely.” The HSCL-21 is comprised of three scales including General Feelings of Distress, Somatic Distress, and Performance Difficulty (Green, Walkey, McCormick, & Taylor, 1988). A Total Distress score can also be calculated and was the measure utilized in this study.

The HSCL-21 was developed through factor analysis from a more extensive inventory which employed samples of college students from the United States and New Zealand, nurses, and clinical patients. Cronbach’s alphas for HSCL-21 scales were reported to be .85 for Performance Difficulty, .75 for Somatic Distress, .86 for General Feelings of Distress and .90 for Total Distress (Green et al., 1988). In this study

Cronbach's alpha coefficient for the Total Distress scale was .87. Cronbach's alpha coefficients for the subscales in this study were .75 for Performance Difficulty, .71 for Somatic Distress, and .83 for General Feelings of Distress. Validity of the HSCL-21 is supported by research demonstrating that Total HSCL-21 distress scores effectively discriminated between population samples of clinical and nonclinical individuals. Further, the HSCL-21 demonstrated sensitivity to changes in participant's levels of distress over the course of therapy (Deane, Leathem, & Spicer, 1992).

Perceived Stress

The Perceived Stress Scale (PSS) is a 10-item inventory designed to measure the degree to which one appraises situations in his or her life as stressful (Cohen, Kamarck, & Mermelstein, 1983). Respondents are asked to indicate on a 5 point Likert-type scale how often they have felt or thought in specific ways during the past month. Response options range from "never" to "very often" (Cohen et al., 1983).

Coefficient alphas were reported by the authors to range between .84 and .86 for three separate samples. In this study Cronbach's alpha coefficient was .83. Test-retest reliability was reported by the authors to range from .85 over 2 days to .55 over six weeks among a sample of individuals participating in a smoking cessation program. Concurrent validity was also supported with data from two samples of college students participating in a smoking cessation program. The authors reported correlations which ranged from .52 to .76 between PSS scores and self-reported depressive and physical symptomatology. Correlations ranging between .37 and .48 were reported between PSS scores and social anxiety, and .20 between PSS scores and utilization of health services (Cohen et al., 1983).

Procedure

Prior to initiation of the study, consent to perform this study was obtained from the Institutional Review Board of The University of Texas at Austin. After approval was received, participants were recruited through the Educational Psychology Subject Pool. Participation was also solicited through emails sent to academic departments and programs, multicultural and social organizations affiliated with the university, and through flyers posted across the campus. Dozens of academic programs, departments, organizations, and individuals were contacted in the process of soliciting participation in this study. Student's that volunteered for the study were screened as to whether they self-identified as being Latina/o, Hispanic, etc. Those meeting requirements for participation in the study were then scheduled to attend an individual research appointment.

At the time that each participant scheduled an appointment he/she was instructed to abstain from smoking or consuming caffeinated beverages during the two hours immediately preceding the appointment. Once the participant arrived for the scheduled appointment, the principal investigator reviewed the informed consent and participant's rights with the participant, and gained his/her consent.

Administration of the study procedures was done on an individual basis. After signing the informed consent form, participants were seated in a quiet room and were instructed that they would be allowed to relax for a period of five minutes. After the period of relaxation, systolic and diastolic blood pressure readings were measured twice, two minutes apart. Each of the two systolic and diastolic readings was averaged in order to create more reliable resting systolic and diastolic blood pressure measures for each participant.

After blood pressure readings were taken, participants' height and weight were measured in order to calculate and later control for variance in dependent variables associated with Body Mass Index (BMI). Participants were then lead to another quiet study room in which they were asked to complete 6 surveys including the CISS, NEO PI-R Neuroticism scale, the PRSL, the HSCL-21, the PSS, and the PANAS. Upon completion of the surveys, participants were provided with a debriefing handout explaining in greater depth, the purpose and nature of the study in which they had participated. The Principal Investigator was also on hand to answer questions or discuss the study further with those that desired.

Research Questions, Statement of Hypotheses, and Data Analysis

Research Question One

What is the relationship between self-reports of coping strategy, neuroticism, negative affectivity and perceived racism? Do increased self-reports of neuroticism, negative affectivity, and emotion-focused coping predict increased self-reports of perceived racism? Are increased reports of avoidance coping negatively correlated with self-reports of perceived racism?

Hypothesis One. It is hypothesized that increased self-reports of neuroticism, negative affectivity, and emotion-focused coping, as measured by the NEO PI-R, PANAS, and CISS respectively, will be positively correlated with self-reports of perceived racism as measured by the PRSL. It is also hypothesized that increased self-reports of avoidance coping, measured by the CISS, will be negatively correlated with self-reports of perceived racism.

Rationale One. Previous research (Watson & Pennebaker, 1989) indicates a consistent relationship between neuroticism and negative affectivity and maximized self-reports on health measures. It is thought that this relationship may be due to the propensity of those high in neuroticism and negative affectivity to ruminate and interpret neutral or ambiguous stimuli negatively (Watson & Pennebaker, 1989), increase one's appraisal of stressful events (Williams, et al., 2003), as well as exaggerate symptoms (Costa & McCrae, 1985). Therefore, it is proposed that neuroticism, as measured by the NEO PI-R and negative affectivity, as measured by the PANAS, will predict increased self-reports of perceived racism as measured by scores on the PRSL. It is also proposed that emotion-focused coping, as measured by the CISS, will be positively correlated with self-reports of perceived racism.

While it appears to date that no previous research linking emotion-focused coping to one's propensity to maximize or minimize responses on self-report measures has been conducted, there is good reason to hypothesize the presence of such a relationship. Regarding the constructs they are designed to assess, some emotion-focused coping measures, such as that included in the CISS, appear to share some overlap with measures of neuroticism such as the NEO PI-R. Some of the overlap in these constructs includes the experience of anxiety and worry, anger and hostility, and general distress. Therefore, due to the shared similarities in the operationalized constructs of emotion-focused coping and neuroticism, and previous demonstrations that neuroticism is correlated with increased self-reports on health measures, it is proposed that measures of emotion-focused coping will perform in a similar manner and will also be positively correlated with self-reports of perceived racism.

Alternatively, research suggests that defensiveness and denial are associated with decreased self-reports of distress (Nyklicek et al., 1998) and perceived racism (Krieger, 1990). Therefore, it is hypothesized that increased scores on the Avoidance coping scale of the CISS will be correlated with the minimization of the experience of racism and therefore decreased self-reports of perceived racism as measured by the PRSL.

Research Question One Analysis. The analysis for research question one will endeavor to determine the relationship of Neuroticism scores on the NEO PI-R, Negative Affectivity scores on the PANAS, Emotion-focused and Avoidance coping scores on the CISS, to self-reports of perceived racism on the PRSL. In order to ascertain the nature of these relationships the bivariate correlations between each of these variables and perceived racism scores on the PRSL will be analyzed. Prior to this step data will have been analyzed to detect for outliers or missing data and appropriately cleaned.

Research Question Two

Do increased self-reports of perceived racism predict relatively higher levels of blood pressure among a population of Latina/o women and men after controlling for the variance accounted for by participants' use of coping strategies and self-reported levels of neuroticism and negative affectivity?

Hypothesis Two. It is hypothesized that increased self-reports of perceived racism will predict higher systolic and diastolic blood pressure after controlling for the variance in blood pressure accounted for by coping strategy, neuroticism, and negative affectivity.

Rationale Two. Previous research (Brondolo et al., 2003; Williams et al., 2003; Harrell et al., 2003) has tentatively indicated a relationship between perceived racism and blood pressure, hypertension, and cardiovascular reactivity. These results are thought to

be complicated by coping and personality variables that influence this relationship (Harell et al., 2003; Brondolo et al., 2003; Williams et al., 2003). It is anticipated that while coping and personality variables play a role in this relationship, self-reports of perceived racism will account for variance in blood pressure levels above and beyond that variance associated with coping strategies, neuroticism, and negative affectivity.

Research Question Two Analysis. Simultaneous multiple regression analysis will be utilized to analyze the relationship between these variables. Two models will be analyzed, the first predicting levels of systolic blood pressure and the second predicting levels of diastolic blood pressure. Participant's scores on the Neuroticism scale of the NEO PI-R, Avoidance, Emotion-focused, and Task-focused coping strategy scores on the CISS, and Negative Affectivity score on the PANAS will be entered to determine what proportion of the variance in systolic and diastolic blood pressure is accounted for by these variables. Participant's perceived racism scores on the PRSL will also be entered to determine what proportion of unique variance in systolic and diastolic blood pressure is accounted for by self-reports of perceived racism above and beyond that associated with the variables previously mentioned.

Age, gender, and BMI will also be entered into these 2 simultaneous multiple regression models. While these variables are not immediately the focus of this study, they are thought to have an important influence on blood pressure levels (Lukas et al., 2003; Uchino, et al., 2006; CDC, 2007a). Therefore, they will also be included in these analyses to control for the unique variance accounted for by these variables, and thus their potential effect on this relationship.

Research Question Three

Do increased self-reports of perceived racism predict increased reports of symptoms of distress among a population of Latina/o women and men after controlling for the variance accounted for by participants' use of coping strategies and self-reported levels of neuroticism and negative affectivity?

Hypothesis Three. It is hypothesized that increased self-reports of perceived racism will predict higher self-report scores of symptoms of distress after controlling for variance accounted for by coping strategy, neuroticism, and negative affectivity.

Rationale Three. Previous research has demonstrated a positive relationship between ethnic and racial discrimination and general psychological distress (Williams et al., 2003; Shulz, et al., 2000). Specific evidence has also been gathered to indicate the presence of this relationship among Latinos (Krieger et al., 2005; Stuber et al., 2003). It remains unclear what proportion of unique variance in this relationship is accounted for by self-reports of perceived racism after controlling for the variance associated with coping strategies, neuroticism, and negative affectivity. It is expected that stress resulting in negative psychological and physiological outcomes (e.g. blood pressure) will also be detected on measures of self-reports of symptoms of distress.

Research Question Three Analysis. In order to test this hypothesis, simultaneous multiple regression analysis will be employed. Participant's scores on the Neuroticism scale of the NEO PI-R, Avoidance, Emotion-focused, and Task-focused coping strategy scores on the CISS, and Negative Affectivity scores on the PANAS will be entered to determine what proportion of the variance in self-reported symptoms of distress is accounted for by these variables. Participant's perceived racism PRSL score will also be

entered to determine what proportion of unique variance in levels of symptoms of distress are accounted for by self-reports of perceived racism. Finally, as in the previous regression models, age, gender, and BMI will also be entered to control for their potential effects on this relationship.

Research Question Four

Do increased self-reports of perceived racism predict relatively higher levels of perceived stress among a population of Latina/o women and men after controlling for the variance in perceived stress accounted for by participants' use of coping strategies and self-reported levels of neuroticism and negative affectivity?

Hypothesis Four. It is hypothesized that increased self-reports of perceived racism will predict higher self-report scores of perceived stress after controlling for variance associated with coping strategy, neuroticism, and negative affectivity.

Rationale Four. As discussed under rationale 3, previous research has demonstrated a positive relationship between ethnic and racial discrimination and general psychological distress (Krieger et al., 2005; Stuber et al., 2003; Williams et al., 2003; Shulz, et al., 2000). It remains unclear what proportion of unique variance in this relationship may be accounted for by perceived racism after controlling for coping strategies, neuroticism, and negative affectivity. However, the previous literature discussed regarding the physiological and psychological effects of stress due to perceived racism suggests that perceptions of stress will continue to be influenced by perceived racism after accounting for the effects of coping strategy, neuroticism, and negative affectivity.

Research Question Four Analysis. Simultaneous multiple regression analysis will be employed to analyze this hypothesis. Participant's scores on the Neuroticism scale of the NEO PI-R, Avoidance, Emotion-focused, and Task-focused coping strategy scores on the CISS, and Negative Affectivity scores on the PANAS will be entered to determine what proportion of the variance in levels of perceived stress is accounted for by these variables. Participant's perceived racism PRSL scores will also be entered into this model to determine what proportion of unique variance in levels of perceived stress is accounted for by self-reports of perceived racism. As in research question 2, while not the focus of this study, age, gender and BMI will also be entered into this regression model to control for their potential effects on this relationship.

Chapter Four

Results

Prior to reviewing the study's findings, a brief explanation will be provided regarding the manner in which the results will be presented. First, descriptive data is presented and will be reviewed for all major variables included in this study. Second, bivariate correlations are presented and reviewed in order to ascertain the nature of the relationship of the study variables to one another in this sample. Next, the results of the primary analyses will be presented.

The first of the primary analyses involves reviewing the bivariate correlations between coping strategies, neuroticism, negative affectivity and perceived racism to determine the relationship of each of these variables to self-reports of perceived racism. The primary analyses also include the review of 4 simultaneous multiple regression models discussed previously, predicting systolic blood pressure, diastolic blood pressure, symptoms of distress, and perceived stress. Each of these models is addressed individually and sequentially.

The first simultaneous multiple regression model explored a potential predictive relationship between perceived racism and systolic blood pressure while controlling for the variance accounted for by other potentially important predictors. These other predictors include coping strategies, neuroticism, and negative affectivity, as well as BMI, gender, and age. Each of the three subsequent regression models also controls for the variance accounted for by these same predictors while exploring potential predictive relationships between perceived racism and diastolic blood pressure, symptoms of distress, and perceived stress respectively.

Following a review of the primary analyses, several exploratory analyses are also reviewed. First, 2 additional simultaneous multiple regression models are reviewed. These models are identical to the 2 previous models predicting systolic and diastolic blood pressure discussed in the primary analyses with one exception. These 2 models differ in the exploratory analyses in that all individuals that acknowledged any degree of smoking behavior are removed from the analyses in order to control for the potential effect of this variable on blood pressure.

Next, another simultaneous multiple regression analysis is calculated in which the potential predictive relationship between perceived racism and frequency of visits to a physician is explored. Again this model, like those in the primary analyses, also controls for the variance accounted for by coping strategies, neuroticism, and negative affectivity, as well as BMI, gender, and age.

Finally, exploratory analyses were undertaken to better understand unanticipated results regarding avoidance coping within the 2 simultaneous multiple regression models predicting systolic and diastolic blood pressure. These exploratory analyses included calculating 4 additional simultaneous multiple regression models identical to those in the primary analyses predicting systolic and diastolic blood pressure. The exception in these models is that in the first 2 models predicting systolic and diastolic blood pressure, participant's CISS Social Avoidance subscale scores are substituted in the analyses in place of CISS Avoidance scale scores. In the third and fourth models, participant's Distraction subscale scores were substituted in place of the Avoidance scale scores of the CISS.

The Social Avoidance and Distraction subscales of the CISS are comprised of subsets of the items that, as a whole, make up the overall Avoidance coping scale of the CISS. Each of these 2 subscales is designed to measure qualitatively different types of avoidant coping behaviors with one measuring distraction type avoidance behaviors and the other measuring avoidance behaviors involving contacting or being around other people. These analyses were undertaken to explore the possibility that “social support” seeking behavior and not maladaptive avoidance coping behavior may be responsible for unanticipated results regarding avoidance and blood pressure. The rationale regarding this exploratory analysis will be discussed in greater detail later in this chapter.

Preliminary Analyses

Descriptive Data for Predictor and Criterion Variables

Descriptive data regarding predictor and criterion variables is presented in Table 1. Descriptive data for this study appear to be what would generally be expected of an undergraduate/graduate student population. For all scores included in this study, higher values indicate a greater presence of the variable being measured. In the case of the physiological measures employed (i.e. systolic blood pressure [SBP], diastolic blood pressure [DBP], and Body Mass Index [BMI]), generally accepted guidelines have been established regarding optimal values. Systolic blood pressure of 120 mmHg or lower and diastolic blood pressure of 80 mmHg or lower is considered optimal for health (American Heart Association, 2007). Regarding BMI, values ranging between 18.5 and 24.9 are associated with optimal health and decreased risk for mortality and various diseases (CDC, 2007a).

Table 1.
Descriptive information for predictor and criterion variables.

	N	M	SD	Min	Max	Skewness	Kurtosis
1. SBP	147	122.53	11.85	90.00	158.50	0.18	0.22
2. DBP	147	75.53	9.34	53.00	120.00	0.90	3.02
3. PRSL	146	48.25	11.21	34.00	88.00	1.53	2.13
4. CISS T	147	57.52	9.33	27.00	80.00	-0.48	0.58
5. CISS E	147	43.44	10.60	19.00	64.00	-0.06	-0.65
6. CISS A	147	46.46	11.21	16.00	70.00	-0.27	-0.37
7. NEO	147	133.59	24.64	62.00	191.00	-0.08	-0.39
8. HSCL	147	37.58	9.62	22.00	66.00	0.88	0.67
9. PSS	147	18.27	5.94	2.00	32.00	0.03	-0.30
10. PNSN	146	14.59	4.55	10.00	32.00	1.23	1.45
11. BMI	147	26.20	5.93	17.80	47.90	1.39	2.10
12. Age	147	22.84	5.40	18.00	54.00	2.40	7.75
13. DrVst	147	1.58	0.72	1.00	4.00	1.06	-1.24

Abbreviations: SBP=Systolic Blood Pressure, DBP=Diastolic Blood Pressure, PRSL=Perceived Racism scale for Latinos, CISST=Coping Inventory for Stressful Situations Task score, CISSE=Coping Inventory for Stressful Situations Emotion-focused coping score, CISSA=Coping Inventory for Stressful Situations Avoidance score, NEO=NEO PI-R, HSCL=Hopkins Symptoms Checklist-21, PSS=Perceived Stress scale, PNSN=Positive and Negative Affect schedule Negative score, BMI=Body Mass Index, DrVst = Frequency of Doctor's Visits

The mean systolic blood pressure of participant's in this study was 122.53 mmHg, slightly above the range recommended by the American Heart Association, while the

mean diastolic blood pressure was 75.53 mmHg, and thus fell within what would be considered the optimal range (American Heart Association, 2007). It is interesting to note that the mean BMI in the study population was 26.2 which places the “average” participant in this study in the “overweight” category according to the CDC’s current guidelines (CDC, 2007a). Thus, according to current guidelines, 73 individuals, or roughly 50% of the participants in this study, had a BMI above the recommended “normal” range.

It is also apparent upon examination of the descriptive statistics that with regards to certain variables, some mild to moderate problems with skewness and kurtosis exist within this sample. Mild to moderate problems with skewness are apparent with regards to PRSL, BMI, and Age data while some excessive kurtosis can be observed with regards to diastolic blood pressure, and Age data (see table 1).

It should also be explained that these descriptive statistics and all subsequent analyses in this study were performed after data for 4 individuals had been excluded from the analyses. The first individual excluded from the analyses reported that he was currently taking anti-hypertensive medication. He was therefore excluded because of the effect this medication may have had to artificially suppress his current blood pressure measurements.

Data from the remaining 3 individuals was excluded after graphic analysis revealed the presence of 3 outlying cases. These individuals possessed scores on the PRSL that exceeded 3.94 standard deviations of the mean and ranged between 3.94 and 5.75 standard deviations from the mean. Graphical representation of the data revealed

that these cases were true outliers in that they were completely separated from the distribution.

To examine reasons for the extreme scores among these participants, item level inspection of these participant's scores was undertaken. This inspection indicated that these participants had reported levels of racism that were not feasibly possible (e.g. being denied for housing, turned down for loans, stopped or harassed by police, several times a day over the past year, etc.) across a number of items on the PRSL. Therefore, due to the suspect nature of their responding, data for these 3 participants was excluded from subsequent analyses in this study.

An important alteration to participant's PRSL data, undertaken before the statistical analyses were conducted, must also be described. In chapter 3 the PRSL was described including the Likert-type scale created by the authors for inclusion in the measure. The Likert-type scale options range from "0" to "5." The lower response options represent the endorsement of less experience of perceived racism while the higher options represent the endorsement of greater experience of perceived racism (Collado-Proctor, 1999). The change made to participant's data pertained specifically to the descriptors for the scale response options of "0" and "1." The PRSL scale descriptor for a response of "0" is "Not Applicable" while the descriptor for a response of "1" is "Never."

These 2 response options became problematic when attempting to use regression to determine the variation in other constructs in relation to one's endorsement of the experience of perceived racism. While "0" and "1" responses provide *qualitative* information regarding an individual's experience of perceived racism, these response options are problematic in that they assign differential value to what are essentially both

responses that indicate the same *quantity* of experience of perceived racism. In other words, two individuals responding to the same item (e.g. being turned down for loans), the first with a “0” and the second a “1,” are both in essence stating that they have never experienced perceived racism in that particular circumstance, just for different reasons. The first individual, responding with a “0” is indicating that she has never been in that situation to have the opportunity to experience perceived racism while the second individual is indicating that she has been in that situation and did not experience perceived racism. According to the way the scale is constructed, the answers are ascribed different numerical values even though they are quantitatively the same with respect to the amount of perceived racism that the 2 individuals have endorsed.

Several options as to how to handle this problem were entertained. Ultimately, it was decided that all “0” and “1” responses on the PRSL would be collapsed and would be assigned a value of “1.” Before this was done, item level review of participant’s responses was undertaken to determine that participants were in fact responding on the scale as was designed to do so and were appropriately identifying the subtle qualitative difference between “0” and “1” responses. Close attention was given to this review in order to determine that participants weren’t merely overlooking this detail and responding as they would to any other typical Likert-type scale that didn’t include this subtle difference.

Item level review of participant’s responses did suggest that participants were aware of this subtle difference and had been responding on the scale as it was designed. This fact appeared to be evidenced by the manner in which participants responded to specific items such as those referring to discrimination because of one’s Spanish accent,

being physically assaulted, or in reference to being turned down for housing, loans, etc. In reviewing individual protocols it was sufficiently apparent that individuals frequently responding to items with a “1” often departed from that tendency and scored certain items such as these, with a “0.” This observation seemed to suggest that among these items referring to experiences that would be expected to be less common among the general population (e.g. being physically assaulted), or less common among this specific population because of their young age, participants recognized that there was a subtle but important difference on the response options and used those options appropriately. Thus, it appeared that collapsing “0” and “1” responses together was a relatively safe and appropriate decision to adjust the data to quantitatively reflect the reality of individual’s experience of perceived racism when entered in the regression analyses. Moradi and Risco (2006) also chose to follow this procedure in their use of the PRSL.

Bivariate Correlations for Predictor and Criterion Variables

In reviewing the bivariate correlations between the predictor and criterion variables, the most notable observation is that perceived racism was not significantly correlated with either systolic or diastolic blood pressure. However, examination of the results does suggest that perceived racism was significantly positively correlated with both symptoms of distress as measured by the Hopkins Symptoms Checklist-21 and perceived stress as measured by the Perceived Stress Scale. All bivariate correlations for the predictor and criterion variables can be found in tables 2 and 3.

Table 2.
Bivariate correlations for predictor and criterion variables.

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. SBP	1									
2. DBP	.70**	1								
3. PRSL	.08	.06	1							
4. CIST	-.09	.09	.16*	1						
5. CISE	-.10	-.12	.17*	-.20*	1					
6. CISA	-.13	-.11	.01	.04	.00	1				
7. NEO	-.13	-.14	.14	-.31**	.76**	.01	1			
8. HSCL	-.09	-.12	.26**	-.07	.57**	.06	.65**	1		
9. PSS	-.08	-.14	.19*	-.24**	.62**	.04	.70**	.62**	1	
10. PNS	.05	.06	.17*	-.02	.30**	-.01	.41	.49**	.43**	1
11. BMI	.47**	.41**	.22**	-.07	.08	.09	.11	.19*	.22**	.14
12. Age	.02	.18*	.01	-.04	.00	-.13	.07	-.01	.01	.04
13. Gender	-.37**	.02	-.03	-.02	.11	.10	.17*	.05	.05	-.10
14. DrVst	-.16	-.22**	.26*	.03	.22**	-.01	.21*	.33**	.17*	.08
15. GPA	-.13	-.03	.15	.23**	-.07	-.14	-.05	-.04	-.09	.08
16. ExFreq.	.12	.02	.06	.02	-.11	-.05	-.09	-.11	-.22**	.20*

Abbreviations: SBP=Systolic Blood Pressure, DBP=Diastolic Blood Pressure, PRSL=Perceived Racism Scale for Latinos, CIST=Coping Inventory for Stressful Situations Task score, CISE=Coping Inventory for Stressful Situations Emotion-focused coping score, CISA=Coping Inventory for Stressful Situations Avoidance score, NEO=NEO PI-R, HSCL=Hopkins Symptoms Checklist-21, PSS=Perceived Stress Scale, PNS=Positive and Negative Affect Schedule Negative score, BMI=Body Mass Index, DrVst=Frequency of Doctor visits, ExFreq=Exercise frequency
*p<.05, **p<.01

Table 3.
Bivariate correlations for predictor and criterion variables.

	1.	2.	3.	4.	5.	6.
1. BMI	1					
2. Age	.03	1				
3. Gender	-.03	.03	1			
4. DrVst	-.01	-.12	.10	1		
5. GPA	-.20*	.32**	.13	-.04	1	
6. ExFreq	-.07	.02	-.21**	-.03	.04	1

Abbreviations: BMI=Body Mass Index, DrVst=Frequency of Doctor's visits, ExFreq=Exercise frequency
*p<.05, **p<.01

Interestingly, perceived racism was also significantly positively correlated with frequency of visits to a physician over the past 2 months as reported by participants. According to self-report data, individuals that reported greater experience of perceived racism also reported having visited a physician more frequently during the previous 2 months. In addition, within this study sample perceived racism was found to be significantly and positively correlated with emotion-focused coping, task-focused coping, negative affectivity, and BMI. In other words, as individuals reported engaging in more emotion-focused and task-focused coping, experiencing more negative affectivity, and had higher BMI's they also reported having experienced more perceived racism.

Analysis of the bivariate correlations of the other primary variables of interest in this study also reveals interesting results. Regarding blood pressure levels, as expected, BMI was significantly positively correlated with measurements of both systolic and

diastolic blood pressure. Gender was found to be significantly related to systolic but not diastolic blood pressure, with males possessing higher measurements of systolic blood pressure. The average systolic blood pressure for males was 129.33 mmHg while the average for females was 119.72 mmHg. An independent samples t-test of the mean difference suggests that mean systolic blood pressures for men and women were significantly different, $t(145) = 4.80, p < .001$. Age was also found to be significantly positively correlated with diastolic but not systolic blood pressure measurements.

Regarding coping strategies, task-focused coping was found to be significantly negatively correlated to emotion-focused coping, neuroticism, and perceived stress while being positively correlated with participant's GPA. Emotion-focused coping was found to be positively correlated with neuroticism, negative affectivity, symptoms of distress, perceived stress, and frequency of visits to a physician. The significant correlation between emotion-focused coping and neuroticism may need to be interpreted with a slight amount of caution. The high positive correlation between these 2 variables may suggest that the items of these questionnaires are tapping the same or a similar underlying constructs. Within this sample, avoidance coping remained uncorrelated with any of the other primary variables of interest.

Neuroticism, as mentioned previously, was negatively correlated with task-focused coping and positively correlated with negative affectivity, symptoms of distress, perceived stress, and frequency of visits to a physician. Again, a high bivariate correlation between neuroticism and perceived stress should be interpreted with caution due to the fact that these 2 measures may be tapping the same or similar underlying constructs. There was also a significant gender difference regarding neuroticism with

women in this sample scoring higher on the NEO PI-R Neuroticism scale. An independent samples t-test of this mean difference indicated that this difference was significant, $t(104.97) = -2.33, p < .05$, with women reporting higher levels of neuroticism. This result is consistent with those findings reported by the authors of the NEO PI-R, in which they also found that women tend to score slightly higher on the neuroticism scale than do men (Costa & McCrae, 1992b).

Calculation of the bivariate correlations also suggests that negative affectivity was significantly positively correlated with symptoms of distress and perceived stress. In addition to significant correlations previously mentioned, symptoms of distress was positively correlated with perceived stress, BMI, and frequency of visits to a physician. Perceived stress was also found to be significantly positively correlated with BMI and frequency of visits to a physician while being negatively correlated with exercise frequency. Interestingly BMI was also found to be significantly negatively correlated with GPA in this sample.

Research Question One

Research question 1 addressed the relationship between participant self-report scores on a measure of perceived racism and self-report measures of neuroticism, negative affectivity, and coping strategies. It was hypothesized that Neuroticism, Negative Affectivity, and Emotion-focused coping scores, as measured by the NEO PI-R, PANAS, and CISS respectively, would be positively correlated with self-reports of perceived racism as measured by the PRSL. These hypotheses were based upon previous research suggesting increased reporting of stress and non-stress related symptoms (Costa & McCrae, 1987) and on health complaint questionnaires (Watson & Pennebaker, 1989)

by those measuring high in negative affectivity and neuroticism. In addition, it was hypothesized that avoidance coping, as measured by the CISS, would be negatively correlated with self-reports of perceived racism. In other words, it was hypothesized that those measuring high on avoidance coping would be more likely to deny or avoid thinking about painful or threatening experiences (Nyklicek et al., 1998) and would thus be less likely to report having experienced perceived racism.

To test these hypotheses, bivariate correlations were calculated for each of these 4 variables in relation to perceived racism scores on the PRSL (see tables 2 and 3). Bivariate correlations between perceived racism and other variables measured in this study were also calculated to determine what relationship if any these other variables might also have with one's proclivity to report perceived racism on a self-report measure. The results of these analyses indicate that both emotion-focused coping ($r = .17, p < .05$) and negative affectivity ($r = .17, p < .05$) were significantly positively correlated with self-reports of perceived racism. Neuroticism and avoidance coping remained uncorrelated with perceived racism. These results suggest that individuals measuring higher on measures of emotion-focused coping and negative affectivity would also be more likely to report greater experience of perceived racism.

Regarding other variables for which bivariate correlations were calculated it was also found that task-focused coping ($r = .16, p \leq .05$), symptoms of distress ($r = .26, p < .01$), perceived stress ($r = .19, p < .05$), and BMI ($r = .22, p < .01$) were significantly positively correlated with self-reports of perceived racism. In addition, it was found that while the bivariate correlation between the overall Neuroticism scale scores of the NEO PI-R and the PRSL was not significant, the bivariate correlation between the Impulsivity

facet scale of the NEO PI-R and the PRSL ($r = .18, p < .05$) did attain significance. These findings suggest that individuals that report more task-focused coping, symptoms of distress, perceived stress, and impulsivity on self-report measures are also more likely to report greater experience of perceived racism. These results also indicate that as BMI increased among participants, so did one's proclivity to report perceived racism.

Research Question Two

In research question 2 I addressed the relationship between self-reports of perceived racism and blood pressure levels among a population of Latina/o women and men. Specifically, I hypothesized that increased self-reports of perceived racism would predict higher levels of both systolic and diastolic blood pressure after controlling for the variance accounted for by coping strategy, neuroticism, and negative affectivity. Age, gender, and BMI were also included in this analysis to control for the variance in blood pressure accounted for by these variables, and thus their potential effect on the relationship between perceived racism and blood pressure.

Two simultaneous regression analyses were employed to analyze the relationships between these variables. In the first model, PRSL, CISS, NEO PI-R, and PANAS scores as well as BMI, age, and gender were used to predict systolic blood pressure measures. The second model also used PRSL, CISS, NEO PI-R, and PANAS scores, BMI, age, and gender in an effort to predict diastolic blood pressure.

The results of these analyses suggest that the first simultaneous regression model used to predict systolic blood pressure achieved statistical significance ($R^2 = .40, F(9, 135) = 10.02, p < .001$). However, the only standardized regression coefficients that achieved statistical significance were CISS Avoidance coping ($\beta_{\text{CISA}} = -.14$), BMI (β_{BMI}

= .48), and gender ($\beta_{\text{gender}} = -.71$). The regression coefficient reported for gender represents the difference in predicted values for males and females divided by the standard deviation of Y. Regarding BMI, these results indicate that as BMI increased among participants, systolic blood pressure measurements also increased. The relationship between gender and systolic blood pressure was such that male gender was associated with higher systolic blood pressure.

It is notable that the standardized regression coefficient for Avoidance coping was significant in the opposite direction of that hypothesized, suggesting that greater use of avoidance coping was associated with lower systolic blood pressure. Concerning the relationship between CISS Avoidance coping scores and systolic blood pressure, the negative value for beta indicates that for every standardized deviation that Avoidance coping scores increased, systolic blood pressure actually decreased .14 standardized deviations. The proportion of variance accounted for in the criterion and all other standardized coefficients for all predictors is reported in table 4.

The results of the second simultaneous regression model predicting diastolic blood pressure also achieved statistical significance ($R^2 = .27$, $F(9, 135) = 5.40$, $p < .001$). It is notable however, that the standardized regression coefficient for perceived racism did not achieve significance. In this model predicting diastolic blood pressure, the standardized regression coefficients for CISS Avoidance coping ($\beta_{\text{CISA}} = -.15$), NEO PI-R Neuroticism ($\beta_{\text{NEO}} = -.26$), BMI ($\beta_{\text{BMI}} = .43$), and age ($\beta_{\text{age}} = .15$), achieved statistical significance. These findings suggest that as BMI and age increased among the participants, diastolic blood pressure measurements did also. Again, it is notable that the standardized regression coefficient for avoidance coping was significant in the opposite

direction of that hypothesized as was the standardized regression coefficient for neuroticism. These results suggest that as avoidance coping and neuroticism increased among participants, diastolic blood pressure decreased. These findings are contrary to that which was anticipated. Again, these results are reported in table 4.

Table 4.

Inferential statistics for each criterion and predictor variable are presented for each simultaneous multiple regression model predicting blood pressure. Each criterion is listed followed by each of the corresponding predictors.

	N	R ²	B	SEB	β	p
1. SBP	147	.40				.00
a. PRSL			.02	.08	.02	.75
b. CIST			-.16	.09	-.13	.09
c. CISE			.02	.12	.01	.90
d. CISA			-.16	.07	-.14	.04
e. NEO			-.09	.06	-.19	.11
f. PNS			.03	.20	.01	.88
g. BMI			.96	.14	.48	.00
h. Age			.03	.15	.01	.86
i. Gender			-8.46	1.82	-.71*	.00
2. DBP	147	.27				.00
a. PRSL			.00	.07	.00	.96
b. CIST			.04	.08	.04	.66
c. CISE			.03	.10	.03	.80
d. CISA			-.13	.06	-.15	.05
e. NEO			-.10	.05	-.26	.04
f. PNS			.20	.17	.10	.24
g. BMI			.68	.12	.43	.00
h. Age			.25	.13	.15	.05
i. Gender			1.43	1.58	.07	.37

Abbreviations: SBP=Systolic Blood Pressure, DBP=Diastolic Blood Pressure, PRSL=Perceived Racism Scale for Latinos, CIST=Coping Inventory for Stressful Situations Task score, CISE=Coping Inventory for Stressful Situations Emotion-focused coping score, CISA=Coping Inventory for Stressful Situations Avoidance score, NEO=NEO PI-R, HSCL=Hopkins Symptoms Checklist-21, PSS=Perceived Stress Scale, PNS=Positive and Negative Affect Schedule Negative score, BMI=Body Mass Index

* The regression coefficient reported for gender represents the difference in predicted values for males and females divided by the standard deviation of Y.

Research Question Three

Research question 3 addressed the relationship between self-reports of perceived racism and symptoms of distress. As discussed earlier, previous research suggests a connection between ethnic and racial discrimination and psychological distress (Williams et al., 2003; Shulz et al., 2000) as well as between perceived racism and blood pressure elevation (Brondolo et al., 2003; Williams et al., 2003). It remains unclear, but logical, that racism related stress resulting in negative psychological and physiological outcomes (e.g. hypertension) would also be detectable on a measure of symptoms of distress such as the Hopkins Symptoms Checklist (HSCL-21), which is sensitive to both somatic and psychological distress. These analyses were therefore undertaken to determine the potential existence and nature of such a relationship.

It was hypothesized that after controlling for the variance accounted for by coping strategy, neuroticism, and negative affectivity, self-reports of perceived racism would predict higher self-reports of symptoms of distress. In other words, after controlling for variance associated with coping, neuroticism, and negative affectivity, perceived racism would continue to account for unique variance in symptoms of distress over and above these other predictors. BMI, age, and gender were also included in the regression model to control for the variance associated with these variables and their potential effects on the relationship between self-reports of perceived racism and symptoms of distress. A simultaneous regression analysis was conducted in order to test this hypothesis. PRSL, CISS, NEO PI-R, and PANAS scores as well as BMI, age, and gender were included in the model predicting self-reports of symptoms of distress on the Hopkins Symptoms Checklist-21. The results of these analyses predicting symptoms of distress,

suggest that the model did achieve statistical significance ($R^2 = .73$, $F(9, 135) = 16.90$, $p < .001$). These analyses suggest that the only standardized regression coefficients to achieve statistical significance within the model included NEO PI-R Neuroticism ($\beta_{\text{NEO}} = .43$) and PANAS ($\beta_{\text{PNS}} = .24$). These findings indicate that as self-reports of neuroticism and negative affectivity increased, so did one's propensity to report psychological and somatic symptoms of distress on the HSCL-21. These results can be found in table 5.

Table 5.

Inferential statistics for each criterion and predictor variable are presented for each simultaneous multiple regression model predicting symptoms of distress and perceived stress. Each criterion is listed followed by each of the corresponding predictors.

	N	R ²	B	SEB	β	p
3. HSCL	147	.53				.00
a. PRSL			.09	.06	.10	.12
b. CIST			.09	.07	.08	.21
c. CISE			.16	.08	.17	.06
d. CISA			.03	.05	.04	.56
e. NEO			.17	.04	.43	.00
f. PNS			.51	.14	.24	.00
g. BMI			.13	.10	.08	.20
h. Age			-.09	.11	-.05	.40
i. Gender			-.41	1.31	-.02	.75
4. PSS	147	.56				.00
a. PRSL			.02	.03	.04	.52
b. CIST			-.04	.04	-.06	.37
c. CISE			.12	.05	.20	.02
d. CISA			.02	.03	.04	.53
e. NEO			.11	.02	.46	.00
f. PNS			.20	.09	.15	.02
g. BMI			.12	.06	.12	.05
h. Age			-.03	.06	-.03	.65
i. Gender			-.42	.78	-.03	.59

Abbreviations: SBP=Systolic Blood Pressure, DBP=Diastolic Blood Pressure, PRSL=Perceived Racism Scale for Latinos, CIST=Coping Inventory for Stressful Situations Task score, CISE=Coping Inventory for Stressful Situations Emotion-focused coping score, CISA= Coping Inventory for Stressful Situations Avoidance score, NEO=NEO PI-R, HSCL=Hopkins Symptoms Checklist-21, PSS=Perceived Stress Scale, PNS=Positive and Negative Affect Schedule Negative score, BMI=Body Mass Index

Research Question Four

In research question 4 the relationship between perceived racism and perceived stress was addressed. It was hypothesized that after controlling for the variance associated with coping strategy, neuroticism, and negative affectivity, self-reports of perceived racism would predict higher self-reports of perceived stress. Again these

hypotheses are based upon previous research suggesting connections between the experience of perceived racism and both psychological distress (Williams et al., 2003; Shulz et al., 2000) and elevated blood pressure (Brondolo et al., 2003; Williams et al., 2003). As in question 2, age, gender, and BMI, were also included in the regression model to control for the variance associated with these variables and their effect on the relationship between self-reports of perceived racism and perceived stress.

In order to test this hypothesis a simultaneous multiple regression analysis was carried out in which PRSL, CISS, NEO PI-R, and PANAS scores as well as BMI, age, and gender were used to predict perceived stress scores. The results of this analysis suggest that this model achieved statistical significance ($R^2 = .75$, $F(9, 135) = 18.95$, $p < .001$) in predicting perceived stress scores. Contrary to what was anticipated, the standardized coefficient for PRSL scores was not statistically significant. However, the standardized coefficients for CISS Emotion-focused coping ($\beta_{\text{CISE}} = .20$), NEO PI-R Neuroticism ($\beta_{\text{NEO}} = .46$), PANAS Negative Affectivity ($\beta_{\text{PNS}} = .15$), and BMI ($\beta_{\text{BMI}} = .12$) did achieve statistical significance. These findings suggest that as self-reports of emotion-focused coping, neuroticism, and state negative affectivity increased among study participants, so too did one's tendency to report perceived stress. These results also suggest that as BMI increased among participants, self-reports of perceived stress also increased. These results can be found in Table 5.

Exploratory Analyses

Perceived Racism and Frequency of Visits to a Physician

After it was discovered in the preliminary analyses that there was a strong bivariate correlation between self-reports of perceived racism and frequency of visits to a

physician, it was decided to further explore this relationship. Specifically, it was decided to test whether self-reports of perceived racism were predictive of frequency of visits to a physician after controlling for the variance associated with other variables that could conceivably explain this relationship including coping strategies, neuroticism, negative affectivity, age, and BMI.

One possible explanation for the positive correlation between perceived racism and frequency of visits to a physician is that both might be better accounted for by other variables such as neuroticism or negative affectivity, which as discussed previously, have been shown to be related to increased reporting on health measures (Watson & Pennebaker, 1989; Costa & McCrae, 1987). Emotion-focused coping might also account for this finding as it has been found by some researchers to be predictive of bodily symptoms as well as positively related to the intensity of some psychiatric stress related disorders (Zeidner and Saklofske, 1996; in Zeidner & Endler, 1996). Neuroticism, negative affectivity, and emotion-focused coping could conceivably influence individuals both to report greater frequency of visits to a physician as well as actually make more frequent visits to a physician. However, if after controlling for the variance in frequency of visits to a physician accounted for by neuroticism, negative affectivity, coping strategies, age, gender, and BMI this relationship continues to be significantly predictive, this would support the notion that the experience of perceived racism does contribute to increased medical help seeking behavior and possibly negative health symptoms or outcomes as well.

In order to test the predictability of this relationship, a simultaneous multiple regression analysis was conducted. PRSL perceived racism, CISS Emotion-focused,

Task-focused and Avoidance coping, as well as NEO PI-R Neuroticism, and PANAS Negative Affectivity scores were used to predict participant's self-reported frequency of visits to a physician. BMI, age, and gender were also included in the model to control for the variance associated with these variables and thus their potential influence on any relationship between perceived racism and visits to a physician.

The results of this analysis suggest that this model did achieve statistical significance ($R^2 = .13$, $F(9, 135) = 2.15$, $p < .05$). Unlike the previous models however, the only standardized regression coefficient to achieve statistical significance was that of perceived racism ($\beta_{\text{PRSL}} = .21$). These results suggest that even after controlling for any variance associated with neuroticism, coping strategy, negative affectivity, BMI, age, and gender, increased self-reports of perceived racism were still predictive of increased visits to a physician. The results of this analysis are presented in table 6.

Table 6.

Inferential statistics for the criterion and predictor variables included in the simultaneous multiple regression model predicting frequency of visits to a physician. The criterion variable is followed by each of the predictors.

	N	R ²	B	SEB	β	p
DrVst	147	.13				.03
a. PRSL			.01	.01	.21	.02
b. CIST			.01	.01	.07	.41
c. CISE			.00	.01	.06	.62
d. CISA			-.00	.01	-.01	.89
e. NEO			.01	.00	.16	.25
f. PNS			-.00	.01	-.02	.87
g. BMI			-.01	.01	-.06	.45
h. Age			-.02	.01	-.14	.10
i. Gender			.16	.13	.10	.23

Abbreviations: DrVst=Frequency of Doctor's visits, PRSL=Perceived Racism Scale for Latinos, CIST=Coping Inventory for Stressful Situations Task score, CISE=Coping Inventory for Stressful Situations Emotion-focused coping score, CISA= Coping Inventory for Stressful Situations Avoidance score, NEO PI-R, PNS=Positive and Negative Affect Schedule Negative score, BMI=Body Mass Index

Systolic and Diastolic Regression Models: Smokers Removed

After the planned analyses were completed for research question 2 predicting systolic and diastolic blood pressure, a second set of exploratory analyses were conducted. This second set of simultaneous multiple regression models was identical to the first with the exception that all participants that had indicated they smoked regularly or occasionally were removed from the analyses. This removal included data for 19 individuals that reported being regular or occasional smokers of any degree.

This step was taken to eliminate the potential effects of smoking on participant's blood pressure measurements. Research suggests that smoking is a known risk factor for hypertension (Al-Safi, 2005) and coronary heart disease (American Heart Association, 1997). Therefore, removal of these 19 individuals from the follow up analyses was

undertaken to ascertain what effect this might have on the study results regarding hypothesis 2 and the prediction of blood pressure.

The results of the first exploratory simultaneous regression model predicting systolic blood pressure after smoker's data was removed, suggest that the model did achieve statistical significance ($R^2 = .40$, $F(9, 116) = 8.47$, $p < .001$). Within this model the standardized regression coefficients for NEO PI-R Neuroticism ($\beta_{\text{NEO}} = -.24$), BMI ($\beta_{\text{BMI}} = .47$), and gender ($\beta_{\text{gender}} = -.30$), achieved statistical significance (see table 7). These results indicate, as was the case in the primary analyses, that higher BMI and male gender were predictive of higher systolic blood pressure. However, whereas in the primary analyses predicting systolic blood pressure, the standardized regression coefficient for avoidance coping was significant, it did not achieve significance in these exploratory analyses after smoker's data was removed. In addition, the standardized regression coefficient for neuroticism did not achieve statistical significance in the primary analyses predicting systolic blood pressure, but did achieve significance in these exploratory analyses after smoker's data was removed. It is also notable that in these exploratory analyses, the standardized regression coefficient for neuroticism was significant in the opposite direction of that hypothesized such that higher neuroticism was predictive of lower systolic blood pressure.

Table 7.

Inferential statistics for each criterion and predictor variable are presented for each simultaneous multiple regression model predicting blood pressure after smoker's data was removed. Each criterion is listed followed by each of the corresponding predictors.

	N	R ²	B	SEB	β	p
1. SBP	128	.40				.00
a. PRSL			.08	.09	.08	.34
b. CIST			-.16	.10	-.13	.12
c. CISE			.04	.13	.04	.74
d. CISA			-.15	.08	-.15	.06
e. NEO			-.11	.06	-.24	.05
f. PNS			.05	.21	.02	.83
g. BMI			.90	.14	.47	.00
h. Age			.12	.15	.06	.45
i. Gender			-8.00	1.97	-.30	.00
2. DBP	128	.31				.00
a. PRSL			.06	.07	.08	.36
b. CIST			.05	.08	.05	.57
c. CISE			.06	.10	.07	.56
d. CISA			-.13	.06	-.16	.05
e. NEO			-.12	.05	-.33	.02
f. PNS			.25	.18	.12	.17
g. BMI			.65	.12	.43	.00
h. Age			.28	.13	.17	.03
i. Gender			.85	1.63	.04	.60

Abbreviations: SBP=Systolic Blood Pressure, DBP=Diastolic Blood Pressure, PRSL=Perceived Racism Scale for Latinos, CIST=Coping Inventory for Stressful Situations Task score, CISE=Coping Inventory for Stressful Situations Emotion-focused coping score, CISA=Coping Inventory for Stressful Situations Avoidance score, NEO PI-R, PNS=Positive and Negative Affect Schedule Negative score, BMI=Body Mass Index

Results for the second simultaneous regression model predicting diastolic blood pressure after smoker's data was removed also suggest that this exploratory model achieved statistical significance ($R^2 = .31$, $F(9, 116) = 5.79$, $p < .001$). Statistical results for this model suggest that the standardized regression coefficients for CISS Avoidance ($\beta_{\text{CISSA}} = -.16$), NEO PI-R Neuroticism ($\beta_{\text{NEO}} = -.33$), BMI ($\beta_{\text{BMI}} = .43$), and age ($\beta_{\text{age}} =$

.17) all achieved statistical significance. These findings indicate that avoidance coping and neuroticism were related to diastolic blood pressure such that higher levels of each were predictive of lower diastolic blood pressure. BMI and age were related to diastolic blood pressure such that increases in each were predictive of higher blood pressure. These exploratory results predicting diastolic blood pressure after the removal of smoker's data are similar to those reported for the primary analyses predicting diastolic blood pressure in which smoker's data was retained in the analyses.

Avoidance Coping and Blood Pressure

The results of the primary analyses for hypothesis 2 suggest that avoidance coping was inversely predictive of both systolic and diastolic blood pressure, a finding that was counter to that which was hypothesized. Further exploration was subsequently undertaken to attempt to understand this finding. Closer scrutiny and analysis was made of the individual items on the CISS Avoidance coping scale. Item-by-item review suggested that the overall CISS Avoidance scale, purportedly measuring avoidance coping behaviors, may actually measure multiple types of behaviors (e.g. disengagement vs. obtaining social support) that may have their own idiosyncratic relationship with stress and blood pressure. The possibility that the CISS Avoidance coping scale measures different types of behavior and the potential for each of these types to have a different relationship with blood pressure will be discussed below.

The authors of the CISS have acknowledged the measurement of different types of avoidance coping within the Avoidance coping scale with the further delineation of both Social Diversion and Distraction subscales on the overall Avoidance coping scale. The Social Diversion subscale includes items referring to behaviors such as phoning a

friend, visiting a friend, or spending time with a special person when experiencing a stressful situation. On the other hand, the Distraction subscale includes items designed to measure engagement in behaviors such as window shopping, eating a snack, going out for a meal, or buying oneself something when experiencing a stressful situation.

The items specific to the Distraction subscale of the CISS may be construed as representing that which would traditionally be thought of as maladaptive avoidance coping behaviors. However, many of the items included in the Social Diversion subscale of the CISS may actually be better conceptualized as “social support” seeking behaviors than true maladaptive avoidance coping. Current behavioral health research suggests a very important inverse relationship between heart disease and social support (Karren, et al., 2002) while social isolation is considered by some to be a serious risk factor for heart disease (Smith & Ruiz, 2002). Furthermore, while they did not directly assess blood pressure, Finch & Vega (2003) reported that among Latino’s in a study in California, social support was found to be a moderator of the negative effect of discrimination on self-reported physical health. If the Social Diversion subscale is in actuality measuring “social support” seeking behavior rather than maladaptive avoidance coping, this could easily explain the relationship found in the primary analyses of hypothesis 2 in which higher CISS Avoidance coping scores were predictive of lower blood pressure.

In order to determine whether these two constructs (Social Diversion or Social Support vs. Distraction) perform differently in predicting blood pressure it was decided that the same 2 simultaneous multiple regression models predicting systolic and diastolic blood pressure in hypothesis 2 would be analyzed again. However, in these exploratory analyses the CISS Social Diversion and Distraction subscale scores would be substituted

for the overall CISS Avoidance scale. Again, the CISS Social Diversion and Distraction subscales are comprised of subsets of the items that constitute the overall CISS Avoidance scale. However, each of these subscales contains a more specific set of items, each pertaining to the type of avoidance (i.e. distraction or social diversion) that the subscale is designed to measure.

It was determined that the same model predicting systolic blood pressure would be analyzed twice, once utilizing the Social Diversion subscale in place of the CISS Avoidance coping scale, and once substituting the Distraction subscale. These analyses would also be repeated for the prediction of diastolic blood pressure. It is hypothesized that the Social Diversion subscale will continue to be inversely predictive of both systolic and diastolic blood pressure while the Distraction subscale, more a measure of maladaptive coping, will be predictive of both higher systolic and diastolic blood pressure.

The results of these analyses suggest that the first simultaneous regression model, substituting Social Diversion for the CISS Avoidance coping scale, in the prediction of systolic blood pressure did achieve statistical significance ($R^2 = .41$, $F(9, 135) = 10.21$, $p < .001$). As predicted, the standardized regression coefficient for CISS Social Diversion ($\beta_{\text{CISSD}} = -.16$) achieved statistical significance in the hypothesized direction as did those for BMI ($\beta_{\text{BMI}} = .48$), and gender ($\beta_{\text{gender}} = -.31$) (see table 8). These results indicate that higher self-reports of social diversion behaviors, as anticipated, were predictive of lower systolic blood pressure among study participants.

Table 8.

Inferential statistics for each criterion and predictor variable are presented for each simultaneous multiple regression model substituting Social Diversion for Avoidance conducted as part of these exploratory analyses. Each criterion is listed followed by each of the corresponding predictors.

	N	R ²	B	SEB	β	p
1. SBP	147	.41				.00
a. PRSL			.02	.08	.02	.78
b. CIST			-.15	.09	-.11	.12
c. CISE			.03	.17	.02	.83
d. CIS-SD			-.43	.18	-.16	.02
e. NEO			-.09	.06	-.20	.09
f. PNS			.03	.20	.01	.87
g. BMI			.97	.14	.48	.00
h. Age			-.01	.15	-.01	.94
i. Gender			-8.19	1.82	-3.11	.00
2. DBP	147	.27				.00
a. PRSL			.00	.07	.00	.99
b. CIST			.05	.08	.05	.55
c. CISE			.03	.10	.04	.74
d. CIS-SD			-.34	.16	-.17	.04
e. NEO			-.10	.05	-.27	.04
f. PNS			.21	.17	.10	.24
g. BMI			.68	.12	.44	.00
h. Age			.23	.13	.13	.09
i. Gender			1.64	1.58	.08	.30

Abbreviations: SBP=Systolic Blood Pressure, DBP=Diastolic Blood Pressure, PRSL=Perceived Racism Scale for Latinos, CIST=Coping Inventory for Stressful Situations Task score, CISE=Coping Inventory for Stressful Situations Emotion-focused coping score, CIS-SD=Coping Inventory for Stressful Situations Social Diversion subscore, NEO=NEO PI-R, HSCL=Hopkins Symptoms Checklist-21, PSS=Perceived Stress Scale, PNS=Positive and Negative Affect Schedule Negative score, BMI=Body Mass Index

Results of the exploratory simultaneous regression model substituting Social Diversion for CISS Avoidance coping, in the prediction of diastolic blood pressure also achieved statistical significance ($R^2 = .27$, $F(9, 135) = 5.47$, $p < .001$). In this model, as predicted, the standardized regression coefficient for CISS Social Diversion ($\beta_{\text{CISSD}} = -$

.17) achieved statistical significance in the anticipated direction. The standardized regression coefficients for NEO Neuroticism ($\beta_{\text{NEO}} = -.27$) and BMI ($\beta_{\text{BMI}} = .44$) also achieved statistical significance (see table 8). These results, indicating that higher self-reports of social diversion behaviors were predictive of lower diastolic blood pressure among study participants, were consistent with the relationship hypothesized earlier.

The results of the exploratory simultaneous regression model substituting the Distraction subscale for the overall Avoidance scale in the prediction of systolic blood pressure also achieved statistical significance ($R^2 = .40$, $F(9, 135) = 9.81$, $p < .001$). The standardized regression coefficients for BMI ($\beta_{\text{BMI}} = .47$), and gender ($\beta_{\text{gender}} = -.32$) again achieved statistical significance (see table 9). However, unlike that which was hypothesized, these results suggest that the standardized regression coefficient for Distraction did not achieve statistical significance.

The results of the final exploratory model substituting Distraction for the overall Avoidance scale in the prediction of diastolic blood pressure also achieved statistical significance ($R^2 = .26$, $F(9, 135) = 5.23$, $p < .001$). Again, unlike that which was hypothesized, the standardized regression coefficient for Distraction did not achieve statistical significance. The standardized regression coefficients NEO Neuroticism ($\beta_{\text{NEO}} = -.25$), BMI ($\beta_{\text{BMI}} = .43$), and age ($\beta_{\text{Age}} = .16$) did achieve statistical significance. These and all other results previously reviewed will be discussed in the following chapter.

Table 9.

Inferential statistics for each criterion and predictor variable are presented for each simultaneous multiple regression model substituting Distraction for Avoidance conducted as part of these exploratory analyses. Each criterion is listed followed by each of the corresponding predictors.

	N	R ²	B	SEB	β	p
1. SBP	147	.36				.00
a. PRSL			.02	.08	.02	.77
b. CIST			-.18	.10	-.14	.06
c. CISE			.01	.18	.01	.92
d. CIS-D			-.23	.13	-.12	.07
e. NEO			-.09	.06	-.18	.13
f. PNS			.03	.20	.01	.88
g. BMI			.95	.14	.47	.00
h. Age			.06	.15	.03	.71
i. Gender			-8.47	1.83	-.32	.00
2. DBP	147	.26				.00
a. PRSL			.00	.07	.00	.97
b. CIST			.02	.08	.02	.79
c. CISE			.02	.10	.03	.82
d. CIS-D			-.19	.11	-.13	.09
e. NEO			-.09	.05	-.25	.05
f. PNS			.20	.17	.10	.25
g. BMI			.67	.12	.43	.00
h. Age			.28	.13	.16	.03
i. Gender			1.42	1.59	.07	.37

Abbreviations: SBP=Systolic Blood Pressure, DBP=Diastolic Blood Pressure, PRSL=Perceived Racism Scale for Latinos, CIST=Coping Inventory for Stressful Situations Task score, CISE=Coping Inventory for Stressful Situations Emotion-focused coping score, CIS-D=Coping Inventory for Stressful Situations Distraction subscore, NEO=NEO PI-R, HSCL=Hopkins Symptoms Checklist-21, PSS=Perceived Stress Scale, PNS=Positive and Negative Affect Schedule Negative score, BMI=Body Mass Index

The results of these 4 exploratory multiple regression models indicate that indeed as hypothesized, higher self-reports on the CISS Social Diversion subscale were predictive of lower systolic and diastolic blood pressure. Hypotheses suggesting that higher self-reports on the CISS Distraction subscale would be predictive of higher

systolic and diastolic blood pressure were not supported. Taken together, these exploratory results offer some support for the theory that the CISS Avoidance coping scale is in part measuring “social support.” Furthermore, these results offer support for the theory that it is the protective relationship of social support that is responsible for the inverse and unexpected findings regarding avoidance coping and blood pressure reported in the primary analyses of research question 2. In other words, these results offer support for the theory that higher self-reports of social support seeking behavior were responsible for the significant prediction of lower blood pressure by CISS Avoidance coping scores regarding research question 2.

Summary of Results

The results of these analyses provide potentially important insight regarding several of the relationships hypothesized in this study. One initial finding pertains to the relationships between several variables of interest and one’s propensity to report perceived racism on a self-report measure. Specifically, these results suggest that higher self-reports of emotion-focused coping, task-focused coping, and negative affectivity are associated with higher self-reports of perceived racism. Interestingly, it was also found among study participants that higher BMI was also correlated with higher self-reports of perceived racism.

Important information was also garnered from these analyses regarding the prediction of blood pressure and other measures of stress and distress from self-reports of perceived racism. Overall, the results of these analyses were not supportive of a predictive relationship between perceived racism and blood pressure, symptoms of distress, or perceived stress as the standardized regression coefficients for this variable in

each of the regression models for research questions 2, 3, and 4 did not achieve statistical significance. The one exception to this finding included the exploratory analyses in which, even after controlling for the variance associated with coping strategies, neuroticism, negative affectivity, and other potentially important variables, perceived racism remained predictive of frequency of visits to a physician.

Regarding the primary analyses for research question 2, it was found that male gender and BMI were predictive of higher systolic blood pressure while higher CISS Avoidance coping scores were predictive of lower systolic blood pressure. Higher BMI and age were also predictive of higher diastolic blood pressure while higher self-reports of both CISS Avoidance coping scores and NEO PI-R Neuroticism were found to be predictive of lower blood pressure. Additional exploratory analyses after the removal of smoker's data were reflective of these initial findings with 2 exceptions. One exception found in these exploratory analyses was that after removing smoker's data, neuroticism also became predictive of lower systolic blood pressure. Also, in these additional analyses avoidance coping, while remaining a significant predictor of diastolic blood pressure, dropped out as a significant predictor of lower systolic blood pressure.

Regarding measurements of stress and symptoms of distress, both higher self-reports of neuroticism and negative affectivity were predictive of higher self-reports of symptoms of distress. Furthermore, higher emotion-focused coping, neuroticism, negative affectivity, and BMI were predictive of higher self-reports of perceived stress.

In addition, further exploratory analyses served to provide support for one explanation of the unexpected findings in which higher self-reports of Avoidance coping on the CISS were predictive of lower blood pressure. In these additional analyses CISS

Social Diversion but not Distraction scores were predictive of lower blood pressure. These additional results provide support for the possibility that higher self-reports of social support seeking behavior, known to have a protective effect on heart health, may in actuality be responsible for these unexpected findings. The relationship and implications of these findings to previous and future research will be discussed in the following chapter.

Chapter Five

Discussion

This current study was undertaken with 4 primary goals in mind. The first goal was to clarify and understand the relationship between self-report responses of perceived racism and coping strategies, neuroticism, and negative affectivity. The second purpose was to determine what if any relationship exists between perceived racism and blood pressure among Latina/o women and men after controlling for the variance associated with coping strategies, neuroticism, and negative affectivity. Next, it was designed to explore the relationship between perceived racism and symptoms of distress after controlling for variance associated with coping strategies, neuroticism and negative affectivity. Finally, this research was designed to determine what if any relationship exists between perceived racism and perceived stress after controlling for variance accounted for by the same variables of coping strategy, neuroticism, and negative affectivity. In this chapter, the primary findings of interest will be reviewed in the same order they were presented in chapter 4, and according to their relevance to the primary hypotheses of this study.

Propensity to Report Perceived Racism

Hypothesis 1 proposed that neuroticism, negative affectivity, and emotion-focused coping would be related to increased reporting of perceived racism. It was also proposed that avoidance-coping would be related to decreased reporting of perceived racism. The statistical analyses regarding hypothesis 1 and the relationships between perceived racism and coping strategies, neuroticism, and negative affectivity suggest that some of the relationships posited in hypothesis 1 were supported by this current data.

Coping Strategies, Neuroticism, and Negative Affectivity

As reported in chapter 4, significant positive relationships were found between self-reports of perceived racism and emotion-focused and task-focused coping and perceived racism and negative affectivity. These results suggest that higher levels of emotion-focused coping, task-focused coping, and negative affectivity are positively related to higher self-reports of perceived racism among Latina/o women and men. Contrary to that hypothesized, neither a significant relationship between neuroticism and perceived racism nor avoidance-coping and perceived racism were detected. Possible reasons for these significant and nonsignificant findings and the implications of such will be discussed below.

As mentioned previously, it has been demonstrated that variables such as negative affectivity, trait anxiety, and neuroticism contribute to the maximization of self-reports of health complaints on health questionnaires (Watson & Pennebaker, 1989). It has also been proposed that denial and defensiveness have been associated with decreased reporting of the experience of racism and chronic hassles in general (Krieger, 1990; Nyklicek et al., 1998). Researchers exploring racism and health have suggested that personality and coping variables (e.g. denial, negative affectivity, trait anxiety, etc.) might also influence one's propensity to maximize or minimize self-reports of racism (Brondolo et al., 2003). To date however, the nature of the relationship between such coping and personality variables and perceived racism is both unknown and a source of controversy (Brondolo et al., 2003). It was also proposed in this study, that due to much of the shared experience between the constructs of emotion-focused coping, neuroticism, and negative affectivity (e.g. the experience of anxiety and worry, anger and hostility,

and general distress), emotion-focused coping might also be related to the maximization of health complaints and possibly self-reports of perceived racism.

The findings of this study indicating a significant relationship between perceived racism and emotion-focused coping and perceived racism and negative affectivity support the notion that these variables are significantly related to increased self-reports of perceived racism. The constructs of emotion-focused coping and negative affectivity share some similarities, namely the experience of negative emotional states including the experience of anxiety/fear, distress, guilt, an inability to cope, and anger. In addition, the concept of emotion-focused coping includes the propensity to deal with problems through blaming, becoming upset, inaction, and focusing on one's inadequacies (Endler, & Parker, 1990a).

It is understandable that such emotional experiences might exacerbate an individual's perceptions of stressful experiences, such as that of perceived racism, both by increasing one's appraisal of such events as being stressful (Williams et al., 2003) and by decreasing one's perception of his or her ability to cope. Accordingly, the significant relationships between emotion-focused coping and perceived racism and between negative affectivity and perceived racism are consistent with and provide support for these hypotheses. Furthermore, these specific results of this study speak to the importance of both measuring and controlling for the effects of emotion-focused coping and negative affectivity in future research exploring perceived racism among Latina/o women and men.

As indicated, a significant positive relationship was also found between task-focused coping and perceived racism. As discussed earlier, task-focused coping entails

the concept of proactively acting on one's problems in ways that include attempts to solve a problem, improve a situation, cognitively restructure one's perception of a situation, or through planning efforts to solve a problem (Carson et al., 2000). It appears that two similarities inherently shared by all task-coping strategies are the propensity to *approach* or *act* on challenges or problems rather than avoid them, and also to do so in a thoughtful and emotionally calm, solution-oriented manner.

The significant relationship between task-focused coping and perceived racism may be reflective of the tendency of those that favor task-focused coping strategies to *approach* and *confront* problematic and distressing situations rather than avoid them. Thus, individuals that report high levels of task-focused coping might be understood to also have a tendency to approach, face, and acknowledge their experience of perceived racism rather than to deny or avoid it. These results suggest that task-focused coping, like emotion-focused coping and negative affectivity, is also an important variable for which to control when measuring and attempting to understand perceived racism and its relationship with additional variables.

As to why no relationship was detected between avoidance-coping and perceived racism and neuroticism and perceived racism it is yet unclear. One explanation that must be considered is the possibility that such a relationship in fact does not exist between these variables and self-reports of perceived racism. However, there appears to be sufficient evidence from previous studies to entertain the hypothesis that such a relationship could in fact and does exist. It is also possible that relationships do in fact exist between perceived racism and avoidance coping and perceived racism and neuroticism, but that they were too weak to be detected with the level of statistical power

present in this study. However, a lack of statistical power appears to be a less probable explanation as fairly small effects were detected elsewhere in this study.

Previous research in fact suggests that many individuals are frequently reluctant to report any type of victimization as it is often associated with aversive feelings of loss of control (Taylor et al., 1996). As discussed previously, Krieger and Sydney (1996) found that among individuals that denied any experience of racism, the risk of hypertension was 2.6 times greater. They subsequently proposed that a subset of individuals cope with the experience of racism and discrimination in part through denial and anger suppression (Krieger & Sydney, 1996). Krieger & Sydney's (1996) results were also consistent with those of Ryan et al. (2006) in which they reported that Latino and Black immigrants, and African Americans that appeared to deny the experience of racial discrimination had higher systolic blood pressure. The research of Nyklicek, et al. (1998) in which "defensive individuals" were found to "underreport problems" is also consistent with these notions (1998, p. 145).

It is notable that each of the Krieger & Sydney (1996) and Ryan et al. (2006) studies included much larger sample sizes at least several times that of this study. In light of the previous research discussed it seems plausible that individuals prone to avoidance coping would also avoid acknowledging victimization inherent in perceived racism and that avoidance coping might still be found to be inversely related to self-reports of perceived racism.

Regarding the relationship between avoidance-coping and perceived racism, it appears that a highly likely alternative explanation may regard the nature of the items composing the Avoidance scale of the CISS which was utilized in this study. As

discussed in the results section, it appears that many of the items of the Avoidance scale of the CISS refer to behaviors that may be thought of more accurately as constituting “social support” seeking behavior rather than maladaptive avoidance behaviors. If this is the case, that many of the CISS Avoidance coping scale items are measuring social support seeking behavior, it would not be expected that a relationship would exist between CISS Avoidance scale scores and PRSL perceived racism scores. Under these conditions such a relationship would not be expected to exist as social support would not be hypothesized to be related to the reporting of perceived racism. If this is in fact a confounding factor in these present results, it is possible that a more pure measure of maladaptive avoidance coping might be found to be inversely related to self-reports of perceived racism as was initially hypothesized in this study. The Krieger & Sydney (1996) and Ryan et al. (2006) studies seem to argue for this possibility.

One possible explanation for the nonsignificant finding between self-reports of perceived racism and neuroticism is that such a relationship may in fact exist, but that the statistical power of this study was simply not strong enough to detect it. As discussed previously, a wealth of research suggests that neuroticism does influence the maximization of self-reports on measures of health complaints (Watson & Pennebaker, 1989) and stress and non-stress related symptoms (Costa & McRae, 1987). One vein of support for the lack of power explanation concerning this study, is the fact that the bivariate correlation between one of the subscale facet scores of the NEO PI-R Neuroticism scale (i.e. Impulsivity) and PRSL scores did achieve statistical significance while 2 of the other 5 facet scores (i.e. Hostility and Self-Consciousness) were close to achieving significance. The bivariate correlation between the NEO PI-R Neuroticism

scale and PRSL was also close to but did not achieve statistical significance. Again however, due to the fact that relatively small effects were detected elsewhere in this study, a lack of power may not be the most probable explanation for failure to detect a significant relationship between neuroticism and perceived racism.

It may also be possible that particular emotional reactions or variables subsumed under the construct of “neuroticism” (e.g. hostility, impulsivity, self-consciousness, etc.) are in fact responsible in previous studies for the significant findings between neuroticism and increased self-reports on measures of health complaints and stress and non-stress related symptoms. If this is the case, certain underlying variables composing neuroticism may also be responsible for any relationship between neuroticism and self-reports of perceived racism. For example, one variable included in the construct of neuroticism is hostility. As discussed in the literature review, Fang and Myers (2001) reported that high hostility was one predictor of higher recovery systolic and diastolic blood pressure levels among African American men when exposed to a racist stimulus.

In an effort to understand any relationship between neuroticism and perceived racism, future research may do well to attempt to isolate the underlying variables that compose neuroticism such as hostility, self-consciousness, and impulsivity. The near-significant bivariate correlations between NEO PI-R Neuroticism scale facet scores and PRSL perceived racism scores in the present research seem to offer support for such an approach in future studies. Furthermore, it was discussed that Watson and Pennebaker (1989) argue that neuroticism, trait anxiety, and general maladjustment are in reality one global construct that they term negative affectivity. However, each of these subcomponent variables of neuroticism or negative affectivity may have its own

idiosyncratic relationship with various self-report measures and with psychological and physiological health outcomes.

BMI and Perceived Racism

One of the interesting revelations discovered in the analyses of hypothesis 1 was the significant positive relationship between BMI and perceived racism. It appears that there are two primary ways in which this result might be understood and explained. First, this result might be understood as being reflective of the actual experience of participants in this study. It may be that participants with a higher BMI actually experience more racial and ethnic discrimination. Prejudice and discrimination toward overweight or obese individuals (King & Shapiro, 2006; Puhl, Schwartz, & Brownwell, 2005; Pingitore, Dugoni, Tindale, & Spring, 1994) as well as toward less attractive individuals is well documented (Dipboye, Arvey, & Terpstra, 1977).

Researchers have repeatedly demonstrated that overweight or obese individuals are stereotypically perceived as having defects related to will power, responsibility, and character, and are seen as being lazy, selfish, and emotionally impaired (Pingitore et al., 1994). Furthermore, research suggests that obese individuals are considered to be less likeable as patients, less desirable with which to interact, and are sometimes perceived as less punctual, trustworthy, less worthy of recognition, and less enthusiastic than their normal weight counterparts (King et al., 2006).

Corresponding discrimination against the overweight or obese related to employment and hiring practices has also been well documented even among individuals with identical job qualifications (Pingitore et al., 1994). Among salespeople, it has been demonstrated that overweight individuals are often assigned to less important and

desirable territories than are their “normal” weight counterparts (King et al., 2006). Similar discriminatory practices have been reported regarding less attractive individuals (Dipboye, 1977). Theorists exploring weight and obesity discrimination have suggested that prejudicial beliefs and attitudes regarding weight are some of the most damaging because individuals are believed to possess complete responsibility for their condition (King et al., 2006).

An understanding of the literature regarding weight and obesity discrimination may be important in understanding the relationship between BMI and perceived racism among a Latina/o population. Recently, some researchers have attempted to understand discrimination from the perspective of multiple oppressions. The idea of multiple oppressions suggests that an individual’s experience of discrimination may be best understood when the convergence of one’s multiple minority or marginalized identities are taken into account (Reynolds & Pope, 2001). For example an individual may be Latina, female, and overweight or may be Asian and have a physical disability. In each of these cases the individual is actually a member of more than one oppressed or marginalized group and may thus experience oppression and discrimination in multiple and additive ways.

Reynolds and Pope define oppression as “a system that allows access to the services, rewards, benefits, and privileges of society based on membership in a particular group” (2001, p. 174). It is believed that within the United States the group upon which society is generally normed and evaluated includes “being anglo, middle class, male, christian, heterosexual, english speaking, young, and mentally, physically, and emotionally unimpaired” (Highlen, Speight, Myers, & Cox, 1989; as cited in Reynolds &

Pope, 2001). According to these propositions regarding oppression and social norms, the closer one comes to matching these criteria the more society allows one access to societal benefits, privileges, services, and rewards. The further away one falls from these criteria, the more one is likely to be denied access to such societal privileges.

With an understanding of weight and obesity discrimination and the concept of multiple oppressions it is easy to understand that individuals in this study with a higher BMI were more likely to report having experienced perceived racism. In fact, it would be logical to conclude that these individuals may actually experience more severe and greater amounts of discrimination as their identities depart from the societal gold standard in multiple ways (i.e. ethnic/racial minority and overweight). As I stated previously, there may also be an additional explanation that enriches our understanding of this relationship between BMI and perceived racism.

Individuals perceiving that they are experiencing discriminatory treatment from others may interpret and explain that treatment to themselves in a variety of ways. As stated previously, it has been proposed by some that “the stigma of obesity [is] one of the most noxious stigmas” as individuals are often perceived to be entirely accountable for their condition and are frequently accounted various and multiple negative attributes by society (King et al., 2006, p. 581). Individuals for whom the concept of multiple oppressions applies could explain one’s experience of subtle discrimination according to any one or to multiple marginalized identities. Individuals in this study could potentially provide internal explanations for discrimination that include both race and or body weight. It may be possible that for individuals in this study who identify both as being Latina/o and as overweight, it is easier and less painful to ascribe discriminatory

treatment to one's race and ethnicity than to the arguably more personal attribute of one's own weight and appearance. Unfortunately, information regarding perceptions of discrimination based specifically upon weight or appearance was not collected in this study.

Explaining one's experience of discrimination in terms of race and ethnicity may provide a slight buffer by allowing one to distance oneself or deflect painful treatment by ascribing it to prejudicial and hateful attitudes towards one's entire group rather than solely to oneself. One might feel that he or she is experiencing discriminatory treatment as a member of a targeted *group* rather than merely being targeted as an individual singled out for personal inadequacies and shortcomings. On the other hand, internal explanations for discrimination that attribute such treatment to weight and appearance may not provide the buffering effect that allows one to psychologically stand together with others as a group.

Rather, explanations citing one's own weight and appearance would likely intensify the distress felt by an individual as such treatment would likely feel even more highly personal. Thus, to protect one's identity and self-esteem it would be likely that individuals would be motivated to ascribe discriminatory treatment in terms of some other variable such as race or ethnicity rather than the more personal variables of weight and appearance. This reasoning may provide tenable hypotheses regarding the significant positive relationship between BMI and self-reports of perceived racism.

Perceived Racism and Blood Pressure

Systolic Blood Pressure Model

One primary hypothesis of this study proposed that a predictive relationship would exist between self-reports of perceived racism and systolic and diastolic blood pressure among a sample of Latina/o women and men. As reported in chapter 4, this hypothesis was not supported by the results of this study. Several suggestions and interpretations of this nonsignificant finding will be discussed below as will the predictive relationships that were detected between avoidant coping, BMI, gender, and systolic blood pressure.

As discussed, while the first simultaneous regression model predicting systolic blood pressure achieved statistical significance overall, it did not provide support for the prediction of systolic blood pressure from self-reports of perceived racism. Several explanations may be posited regarding this failure to detect a significant relationship. The first explanation that must be entertained is that the experience of perceived racism does not in fact contribute to higher blood pressure among Latina/o women and men. There seems to be growing evidence from previous studies exploring this hypothesis to suggest that a significant relationship is likely among African Americans in the United States (Brondolo et al., 2003; Harrell et al., 2003; Guyll et al., 2001; Williams et al., 2003). This however, may not be the case for Latina/o's. While the results of Ryan et al. (2006) provide some evidence to believe that this relationship also exists among Latino's, there are very few studies exploring this specific hypothesis

If a relationship between the experience of perceived racism and systolic blood pressure does not in fact exist among Latina/o's in the United States, one explanation for

this might include the influence of Latina/o cultural worldviews as a buffer against the effects of perceived racism. One aspect of traditional Latina/o culture in some countries is the concept of “fatalismo.” Fatalismo comprises the belief that some life events are inevitable and must be accepted (Sue, & Sue, 1999) and that to some extent one’s destiny is externally determined and therefore outside of one’s control (Guzman, Santiago-Rivera, & Haase, 2005). The concept of fatalismo also includes aspects of religious beliefs about one’s destiny as well as a “present-time orientation” (Guzman et al., 2005, p. 6). This idea of fatalismo is embodied in the common Spanish phrase, “lo que Dios manda—what God wills” (Sue, & Sue, 1999, p. 114).

On the other hand, White majority culture in the U.S. heavily emphasizes an action orientation. This worldview privileges the notion that one must act on one’s problems, that one must always do something to improve a distressing or problematic situation (Sue & Sue, 1999). In essence, what is considered good, normal, and essential is to be in the mode of “doing” something to act on one’s problems. Traditional Latina/o culture departs from this notion with respect to the concept of fatalismo.

Individuals operating from a White majority cultural worldview may experience a great deal of distress from discrimination, in part due to the expectation that “bad things are not supposed to happen to me,” and because of the expectation that one must do something about it to fix the situation. Fatalismo departs from both of these expectations. Accordingly, Latina/o individuals operating from a belief in fatalismo may be more accepting of problematic and “distressing” situations and events as they are. In addition, they may not subject themselves to the internal psychological demand to do something about the experience of perceived racism and thus may not experience the cognitive

dissonance inherent in perceiving that one has been victimized or experienced an injustice and needs to “do something about it.”

Thus, the cultural worldviews of fatalismo and/or non-action and acceptance may comprise to some extent, buffers against the distressing experience of perceived racism. This is of course an oversimplification of the concept and psychological functionality of fatalismo and does not take into account the myriad of other psychological variables influencing one’s interpretation and experience of distressing events such as racism and discrimination. The concept of cultural expectations and worldviews differentially moderating the experience of stress and racism will be addressed further in this section amidst the discussion of avoidance coping and blood pressure.

Other tenable explanations for the failure to detect a significant relationship between perceived racism and systolic blood pressure are also possible. Several seemingly probable explanations involve the specific demographics of the sample used in this study. Specifically, the sample in this study was comprised of undergraduate and graduate students. While the participants in this study ranged in age from 18 to 54 years, the average age of this sample was 22.89 years. As mentioned previously, age is a known risk factor for hypertension (Uchino et al., 2006; Lukas et al., 2003). It is therefore quite possible, that the participants in this study, due to their young age, were young and physically resilient enough that any negative physiological effect that perceived racism related stress might have upon blood pressure had yet to have a lasting detectable effect for them.

It is also possible that due to their young age, the majority of individuals in this study had not yet acquired enough life experience to have been subjected to a large

amount of personal racial/ethnic discrimination. In other words, due to their age, many participants may not yet have had as many opportunities to be denied loans, to be turned down for jobs, to have received discriminatory treatment by health care providers, etc. If the effect of racial and ethnic discrimination related stress is cumulative, most of these participants may not yet have acquired enough perceived racism related experiences to incur its negative stress related effects on blood pressure. If this hypothesis is true, the results of this study may be different if duplicated in a community sample representing greater variability in age. Notably, the mean age of the Ryan et al. (2006) sample that did demonstrate a relationship between discrimination and systolic blood pressure among Latino immigrants was 38.8 years.

Also related to the demographic profile of this sample is the question of SES. As a group, Latinos in the United States have the greatest number of children living under the poverty level, with 46% of Latina/o children in rural areas living in poverty (Vazquez, 2007). In addition, for various reasons, Latina/os between the ages of 16 and 19 have the highest high school dropout rate in the nation at 21% (Guzman et al., 2005). National statistics suggest that only 50.2% of Latinos at age 25 have at least a high school education or better (Meyerowitz, Richardson, Hudson, and Leedman, 1998).

It is probable that in light of this data regarding educational attainment and poverty, that the participants in this sample may not have been representative of Latina/os nation wide with respect to SES and education. The fact that all of the participants in this study were participating in the system of higher education suggests that many of these participants may have come from backgrounds of greater economic resources and had acquired more education than their national counterparts. It would be expected that both

financial resources and education may perform to some extent as buffers against the experience of perceived racism. With this in mind, it is possible that the replication of this study in a community sample that is more representative of Latinos across the nation with respect to education and SES may produce different results.

Another possible explanation for the failure to find a significant relationship between perceived racism and blood pressure relates to the variability of blood pressure itself. Research suggests that blood pressure can vary greatly from moment to moment “due to short-term perturbations of [blood pressure]” (Hansen & Staber, 2006; p. 781). While an attempt was made to protect against this variation by utilizing the average of two measurements of resting blood pressure taken 2 minutes apart, the potential for these measurements to be affected by random moment-to-moment variation certainly still exists.

While the primary hypothesis predicting systolic blood pressure was not supported, other predictors included in this first simultaneous regression model were found to be significant. Specifically, BMI, gender, and avoidance coping were found to significantly predict variations in systolic blood pressure. BMI and gender were originally included in this model to control for their effect on blood pressure. As discussed, previous research suggests that both BMI and male gender are known risk factors for hypertension (CDC, 2007a; Uchino, 2006; Lukas et al., 2003). The significant findings of this study are consistent with and continue to support the notion that higher BMI and male gender are predictive of elevations in systolic blood pressure.

As discussed in the results section, the significant finding in which avoidance coping was inversely predictive of systolic blood pressure was contrary to that which was

expected. The most tenable explanation for this seems to be that which was discussed earlier regarding the fact that the CISS Avoidance coping scale appears to at least partially measure social support seeking behavior rather than maladaptive avoidance behavior. In order to explore this possibility further, 2 additional and identical regression models predicting systolic blood pressure were analyzed with the exception that the CISS Social Diversion and CISS Distraction subscales were substituted for the CISS Avoidance coping scale. The CISS Social Diversion and Distraction subscales consist of subsets of items that taken together with additional items comprise the CISS Avoidance coping scale. These subscales are designed to measure more specific types of avoidance behaviors including social and distraction types of behaviors.

The inversely significant results of the “Social Diversion” subscale substitution are consistent with the hypothesis that the measurement of social support was responsible for the previous inverse findings. This relationship would be expected as current behavioral health research suggests that social support is an important protective factor against heart disease (Karren et al., 2002), that social isolation is a serious risk factor for heart disease (Smith & Ruiz, 2002), and that social support may directly buffer the effects of discrimination on physical health among Latinos (Finch, & Vega, 2003).

The results of the “Distraction” subscale substitution raise additional questions. While this substitution in the prediction of systolic blood pressure did not achieve statistical significance it was close to achieving significance, but again in the inverse direction. The CISS Distraction subscale is comprised of a greater number of items that would traditionally be considered to be maladaptive avoidance behaviors. If Avoidance

coping was indeed positively related to systolic blood pressure, these results beg the question as to why it remained nonsignificant in this follow up analysis.

One possibility as to why “Distraction” did not significantly predict systolic blood pressure involves the explanation begun previously regarding the role of fatalismo. While fatalismo was not a construct initially considered at the outset of this study, the results of these analyses suggest that this variable may be important to consider in future research regarding perceived racism, blood pressure, and other stress symptoms. It is possible that the role of acceptance and the lack of pressure to act to “do something” to fix one’s problem moderates the effect of stressful events (such as perceived racism) on an individual’s well-being. It is also possible that with regards to the effects of stress on well-being and heart health, the role of religiosity in this version of acceptance of one’s fate or destiny constitutes somewhat of an adaptive and buffering coping mechanism.

It has been noted that two theories of fatalism exist. The first a deficit theory, suggests that fatalism would be related to increased distress. The second, a resource-oriented theory posits that fatalism may be adaptive in coping with losses or events that are beyond one’s control (Guzman et al., 2005). Racism and discrimination may be argued to constitute stressors over which individuals may sometimes have little control. Among Latina/os, worldviews involving fatalismo may follow the resource-oriented model and contribute to a variation in, or buffering of, the effects of stress due to perceived racism on heart health.

This idea seems to be consistent with Zeidner and Saklofske’s supposition that in some instances avoidance coping may be adaptive in helping individuals take a break from the relentless pressure of short-term or inescapable stressors (1996; in Zeidner &

Endler, 1996). This idea is also consistent with other research suggesting that avoidant emotion-focused coping may be more effective than task-focused coping in ameliorating distress and behavioral disturbances associated with intensely stressful situations in which one has limited or no control (Strentz & Auerbach, 1988). It is also possible that while avoidant coping is maladaptive in the context of an achievement orientation, it may be adaptive with regards to heart health. Acceptance and disengagement may in fact have a more protective effect on heart health than task-focused coping by providing individuals with some psychological and physical distance from a given stressor. Each of these possibilities is an appropriate subject for future research.

Diastolic Blood Pressure model

Similar to the first simultaneous multiple regression model, the second model predicting diastolic blood pressure also failed to provide support for the hypothesis that perceived racism would be predictive of diastolic blood pressure. However, similar to the first model, the results of this model also suggested that both avoidance coping and BMI were predictive of diastolic blood pressure. As in the first model, avoidance coping was inversely predictive of diastolic blood pressure. This second model also provided the additions that age and neuroticism were predictive of diastolic blood pressure.

Interestingly, neuroticism was inversely related to diastolic blood pressure, a relationship that had not been anticipated. These results will be discussed below.

As with the regression model predicting systolic blood pressure, many of the same explanations may account for the absence of a significant relationship between perceived racism and diastolic blood pressure. These primary explanations would include the possibility that such a relationship does not in fact exist or that cultural worldviews

present in traditional Latina/o culture, such as fatalismo may provide some buffers against the distressing experience of perceived racism. A third explanation would include the possibility that demographic factors such as age and SES were important in this nonsignificant finding. Specifically, the young age of the participants might have contributed to this nonsignificant result in that participants may have been young and physically resilient to the negative effects of perceived racism on blood pressure. They may have also been too young to have yet experienced enough perceived racism for it to have had a lasting effect physiologically. It is also possible that participants in this study differ from their national counterparts according to both SES and educational attainment which may provide buffering effects against the effects of perceived racism. It is possible that if this study were to be replicated in a community sample that is more representative of the Latina/o population according to age, SES, and education, it might produce different results.

As it was in the first regression model, BMI was again a significant predictor of diastolic blood pressure, this time accompanied by age as a significant predictor. This is consistent with previous research, as both of these variables are known to be significant risk factors associated with hypertension (CDC, 2007a; Uchino et al., 2006; Lukas et al., 2003).

The most likely explanation for the significant inverse relationship between avoidance coping and diastolic blood pressure continues to be the likelihood that the CISS Avoidance coping scale is in part measuring social support seeking behavior. It seems likely that the protective element of social support on heart and other measures of physical health also accounts for the inverse relationship between CISS Avoidance

coping and diastolic blood pressure (Karren et al., 2002; Finch & Vega, 2003). Again in order to follow up on this hypothesis CISS Social Diversion and Distraction subscales were substituted for the overall CISS Avoidance coping scale in 2 additional exploratory models predicting diastolic blood pressure.

The fact that the Social Diversion substitution yielded a significant inverse relationship while the Distraction substitution did not yield a significant prediction supports the notion that the social support hypothesis is responsible for the relationship between CISS Avoidance coping and diastolic blood pressure. The fact that the Distraction substitution was nonsignificant may also be interpreted in light of theories suggesting that avoidance coping in cases such as fatalismo, may be adaptive in certain situations (Guzman et al., 2005; Zeidner & Saklofske, 1996: in Zeidner & Endler, 1996; Strentz & Auerbach, 1988), or may be adaptive with regards to heart health.

Also of interest in this study is the inverse predictive relationship between neuroticism and diastolic blood pressure. Explanations for this finding are as yet uncertain. While counter to the majority of findings related to blood pressure, this finding seems consistent with a few instances in which Watson and Pennebaker reported small but significant inverse relationships between negative affectivity and blood pressure (1989). Watson and Pennebaker indicated in a review of the literature and several of their own studies that in a small minority of cases, negative emotional experience or negative affectivity, was significantly and inversely related to blood pressure (1989).

One possible explanation for the results of this study and those reviewed by Watson and Pennebaker (1989) may be a tendency for individuals that are actually high in neuroticism to respond defensively or avoid endorsing self-report options which may

be perceived as socially undesirable. In other words, some individuals scoring low on measures of neuroticism may in actuality be high in this variable but are responding defensively.

Another possibility may be that individuals high in neuroticism may be more meticulous about engaging in health behaviors such as exercise and eating a healthy diet. This last option seems less plausible however. While there is some inconsistent evidence to suggest that negative affectivity may be related to frequency of visits to a physician, it appears to not have any strong or consistent relationship with health or fitness behaviors (Watson & Pennebaker, 1989).

These same authors also refer to 2 earlier studies in providing possible explanations for inverse relationships between negative affectivity and health outcomes. In two earlier studies involving cancer patients, it was reported that long-term health status and survival rates were actually associated with greater expression of negative affectivity, hostility, and other emotions (Watson & Pennebaker, 1989; Derogatis, Abeloff, & Melisaratos, 1979; Rogentine et al., 1979). Thus, it is possible that in some not yet understood way, the expression of negative affect and/or neuroticism may contribute to positive health outcomes.

Another more recent study seems to contradict the possibility that neuroticism is somehow protective. Nakaya et al. (2006) reported in a prospective study following 1,020 Danish residents that after a period of 26 years there was a strong positive relationship between neuroticism and the risk of death as well as a negative relationship between neuroticism and cancer survival. Watson and Pennebaker (1989) suggested in their review of the research that the safest conclusion was that no consistent relationship exists

between negative affectivity and blood pressure. Future studies would do well to further explore potential explanations for the inverse relationship between neuroticism and diastolic blood pressure present in this study.

Blood Pressure Regression Model: Smokers Removed

As discussed in the results section, a set of exploratory simultaneous regression models predicting systolic and diastolic blood pressure were undertaken to explore the effect of removing the data of all self-identified smokers from the analyses. For the most part there was little to no change in these exploratory variations of the previous models. There were however, two exceptions. The first exception included the fact that in the exploratory, smokers removed model predicting systolic blood pressure, avoidance coping dropped out as a significant predictor and neuroticism became a significant predictor. Again it is notable that neuroticism was significant in the inverse direction. No significant changes were observed in the exploratory smokers removed model predicting diastolic blood pressure.

One possible explanation for this subtle change involving avoidance coping might be that those who smoke also tend to be more likely to engage in avoidant coping. Thus removal of all smokers from the analyses may have also removed many individuals that tend to cope in avoidant ways. While avoidance coping was no longer a significant predictor in the prediction of systolic blood pressure, it was however still very close to being significant. Therefore, it appears that the safest conclusion to draw would be that the reduction in statistical power after 19 individuals were removed from the analyses may be responsible for this change.

The addition of neuroticism as a significant predictor of systolic blood pressure may be understood in ways similar to that discussed previously concerning diastolic blood pressure in the analyses of research question 2. Namely, it may be that individuals that are actually high in neuroticism respond defensively and avoid endorsing socially undesirable items. Or, more highly neurotic individuals may be more meticulous about taking care of their health. A final explanation, and possibly the safest conclusion is that no consistent relationship exists between neuroticism and blood pressure.

Perceived Racism and Symptoms of Distress

The results of the simultaneous regression model predicting symptoms of distress, while significant overall, did not provide support for the hypothesis that perceived racism would be predictive of symptoms of distress. The inability to detect such a relationship may suggest that it does not exist or that it did not exist within this sample for the same demographic reasons discussed in the previous sections regarding the prediction of systolic and diastolic blood pressure. Within this model neuroticism and negative affectivity were significant predictors of symptoms of distress.

These significant results might be interpreted in multiple ways. The first logical conclusion is that as a self-report questionnaire regarding symptoms of distress, the Hopkins Symptoms Checklist-21 contains a significant neuroticism and negative affectivity component. That is to say that individuals that are more prone to experiencing negative emotions, or that are experiencing negative emotions at the time in which they are completing the questionnaire, are more likely to exaggerate health and stress complaints on this questionnaire. This conclusion is consistent with previous research suggesting that neuroticism and negative affectivity are correlated with increased self-

reports on measures of health complaints and of stress and non-stress related symptoms (Watson & Pennebaker, 1989; Costa & McRae, 1987; Costa & McRae, 1985; Costa & McRae, 1980). It is also possible that individuals that are prone to neuroticism and negative affectivity do also experience higher levels of distress including somatic symptoms. This conclusion seems to be likely and tenable.

Another possibility is that the correlation between neuroticism and symptoms of distress should be interpreted with caution as the bivariate correlation between these two variables at .65 was close to being spuriously high. In other words, the connection between the two variables may be more representative of the fact that they are tapping the same or similar constructs than that they are two different yet related constructs. Review of the items that comprise each of these measures suggests some similarities in that they both tap the negative experience of emotions such as worry, loneliness, blaming oneself, and feelings of low self-esteem or inferiority. However, even with a bivariate correlation of .65 this only accounts for 42% of the variance, leaving open the possibility that there may be more to this relationship than merely tapping the same construct.

Perceived Racism and Perceived Stress

In hypothesis 4 it was proposed that perceived racism would predict perceived stress. The results of this simultaneous regression model did not provide support for this hypothesis. However, several other variables including emotion-focused coping, neuroticism, negative affectivity, and BMI were significant predictors of perceived stress. These results will be discussed below.

It is unclear why perceived racism might not be related to perceived stress. One explanation might include the same variables discussed in regarding the nonsignificant

findings in relation to systolic and diastolic blood pressure. Cultural variables such as fatalismo may provide some buffer of protection. Demographic variables such as age, SES, and education level might also have precluded individuals from experiencing significant amounts of racism or may have buffered them against that experience.

The fact that neuroticism significantly predicted perceived stress might also be interpreted with caution. It is apparent in the preliminary analyses that the bivariate correlation between neuroticism and perceived stress may be spuriously high and thus suggest that both measures are tapping into the same construct. This may also be the case between emotion-focused coping and perceived stress as a high bivariate correlation was also observed between these 2 variables. As with symptoms of distress, these results might also suggest, as suggested by Watson and Pennebaker (1989) and Costa and McRae's (1987) research, that the Perceived Stress measure includes a significant negative affectivity component such that those high in neuroticism, negative affectivity, and emotion-focused coping may exaggerate their responses on the Perceived Stress scale.

The results of this analysis may also just suggest that individuals that tend toward neuroticism, negative affectivity, and emotion-focused coping experience more stress as a result of this experience. Yet another explanation might consider that individuals that are experiencing higher amounts of stress begin to experience negative emotions and thus are more likely to engage in emotion-focused coping and to report higher levels of neuroticism and negative affectivity. Each of these hypotheses might be further explored in future research.

The most interesting revelation regarding this regression model is the significant prediction of perceived stress from BMI. This result supports the interpretation that individuals with a higher BMI are more likely to be experiencing higher levels of stress. It is also possible, that a third unmeasured factor such as health problems may contribute to both higher BMI and perceived stress and thus explain this connection. However, it is not impossible to understand how higher BMI might contribute to the experience of stress. This is a relationship that future research would do well to explore.

Perceived Racism and Visits to a Physician

As mentioned previously, an exploratory analysis was undertaken to follow-up on the significant bivariate correlation between perceived racism and frequency of visits to a physician. This exploratory analysis was comprised of a simultaneous regression model in which the ability to predict the frequency of visits to a physician from self-reports of perceived racism was tested. Importantly, this model also included other variables that could conceivably explain this relationship. These additional variables, namely coping strategy, neuroticism, negative affectivity, and BMI included both those that could influence the exaggeration of self-reports and those that could influence legitimate needs to visit a physician.

Importantly, after controlling for all of the potentially confounding variables mentioned, perceived racism emerged as the only significant predictor of frequency of visits to a physician. This finding may have important implications for the overall question that this study was intended to answer, namely “does the experience of perceived racism have a significant impact on physiological and emotional stress symptoms in Latina/o women and men?” While the previous analyses did not support this

hypothesis, the current results regarding perceived racism and frequency of visits to a physician suggest that there may be more to this question than has been evident.

It is possible that while the negative effects of perceived racism related stress were not observable with respect to blood pressure, symptoms of distress, or perceived stress, that it does contribute to negative health outcomes in other ways. Future research might explore this possibility in more subtle ways including determining the nature of such visits to a physician. Such research should also attempt to uncover other unmeasured confounding variables that might explain the relationship between perceived racism and visits to a physician or that might contribute to the exaggeration of self-reports of both perceived racism and visits to a physician. In any case, this significant result leaves open the possibility that the experience of perceived racism does contribute to negative health outcomes and/or distress in ways that are not yet understood and should be explored.

Limitations

As with all research, it is essential to note several important limitations inherent in this study that affect its implications with regards to previous and future research. One of the most notable limitations of this study regards the demographics of the university student population among which this research was conducted. As with all research conducted among college students, the question of whether it is generalizable to other populations arises.

As mentioned previously, the participants in this study likely differ from a community sample in several important ways, including age, level of educational attainment, and SES. Each of these variables may affect the results of this study in important ways if replicated among a population that differs with regards to these factors.

The relatively young age of the participants in this study may have affected the results in several ways.

Even if perceived racism does contribute a substantial amount cumulative life stress, due to their young age, participant's physiology (e.g. blood pressure status) may yet be resistant to major changes in physiological set points as a result of environmental conditions and stressors. This appears to be an important consideration given that age is known to be significantly positively correlated with blood pressure status both in extant research and with regards to diastolic blood pressure within this study (Uchino et al., 2006; Lukas et al., 2003). Regardless of whether it is perceived racism or other life stress, lifestyle variables, environmental factors, or genetics, these appear to take their toll on blood pressure status more intensely as one ages.

Age may also be a factor in the amount of life experience and thus opportunity to experience perceived racism that one has had. As individuals age, it would be expected that one's cumulative experience of perceived racism would also increase, thus providing greater opportunity for the experience of racism to have a lasting effect. The participants in this study, by the very nature of their relative youth would be expected to have had less life experience and opportunity to experience perceived racism. If perceived racism related stress is cumulative, then individuals in this study would be expected for the most part, to be at the lower end of its experience and effects. Thus, as participants in this study are significantly younger than would be many in a community sample, the lack of a significant finding in this study must not be misconstrued to suggest that a relationship between perceived racism and blood pressure status does not exist among a community Latino sample that differs with regards to age.

Similar concerns with generalizability also exist with regards to level of educational attainment and SES. Statistics were cited previously suggesting that at 46% of the Latino population, Latinos in the United States have the greatest number of children living under the poverty level, (Vazquez, 2007), while Latina/os between the ages of 16 and 19 have the highest high school dropout rate in the nation at 21% (Guzman et al., 2005). In addition, national statistics suggest that only 50.2% of Latinos at age 25 have at least a high school education or better (Meyerowitz et al., 1998). Given these statistics, it is relatively safe to assume that the participants in this study, by the very fact that they are participants in the system of higher education, are not representative of their national community counterparts regarding both educational attainment and SES. It is likely that many of the participants in this study come from backgrounds representing both higher educational attainment and SES.

Educational attainment and SES are both important with respect to perceived racism in light of the earlier discussion regarding multiple oppressions. As individuals gain greater levels of education and economic resources they become more representative of the “gold standard” upon which societal norms of acceptability are based and would therefore be expected to experience less perceived racism than would individuals with fewer economic resources and education.

This principle can quickly be recognized if we take a moment to imagine the contrast between societies’ stereotypical perceptions and assumptions about an upper middle class, educated, Latino family compared to stereotypes of a dark skinned migrant worker family with little education and limited English proficiency. As individuals depart from the “gold standard,” they are met with an increasing number of stereotypes,

misconceptions, and prejudices, and are thought to experience greater levels of perceived racism. Due to the fact that many of the participants in this study likely come from backgrounds of greater resources and education, they may have experienced less perceived racism in their life and may not be representative of the Latino population as a whole. Thus the age and educational demographics of this sample pose a limitation to the generalizability of these results, as the results may differ among a sample that is more representative of the wider U.S. Latino population.

Another limitation related to the demographics of this study must also be discussed. Roughly two thirds of the sample in this study was female, the remaining third of participants being male. While some significant gender differences were reported regarding measures such as systolic blood pressure and neuroticism, the data in this study as a whole was not analyzed by gender. While significant differences were not expected, it is possible that important gender differences may exist with regards to such variables as BMI that would affect the overall results of this study. This is acknowledged as a limitation of this current research and is a possibility to be explored in the future.

Similarly, it is acknowledged that participants in this study were obtained from 2 sources. These 2 sources included the Educational Psychology Subject Pool and the university campus at large which responded to recruitment announcements sent to academic departments, programs, and those posted generally across the university campus. The possibility was considered that pre-existing group differences could potentially exist between these 2 groups. Ultimately however, the participants from the 2 groups appeared to be similar across the various domains pertinent to this research and significant pre-existing differences were assumed to not present a challenge. Therefore,

the two samples were analyzed together and not separately. While it was assumed that this approach does not present a significant challenge to the results of this study, it is acknowledged that it exists as a question with which to follow-up in future research.

Another limitation briefly touched upon earlier in this discussion concerns the measurement of blood pressure itself. Research suggests that blood pressure tends to be variable from one moment to the next, thus a snap shot of one's blood pressure at any given time may not be representative of an individual's blood pressure status over time (Hansen & Staber, 2006). While an attempt was made in this study to protect against this variability by using the average of 2 measurements of resting blood pressure, these measurements were nevertheless close together in time and may have been affected by unseen circumstantial factors or random variation. There is increasing discussion and use of ambulatory blood pressure monitors that provide a better picture of blood pressure variability as well as averages over time (Mc-Nab & Jalil, 2006). While prohibitively costly for a study such as this, ambulatory blood pressure monitors used in future studies with greater funding may yield a better picture of blood pressure status in relation to perceived racism.

Another set of limitations in this study regards some of the paper and pencil measures used to control for various psychological and coping constructs. One of these measures that has already been discussed in detail is the Avoidance coping scale of the CISS. As discussed, it is likely that many of the items of the CISS Avoidance coping scale are measuring social support seeking behavior and thus this scale is likely not a pure maladaptive avoidance coping measure. This fact has presented a stumbling block to understanding the role of avoidance coping in contributing to one's propensity to report

perceived racism. It has also precluded conclusive efforts to control for the effects avoidance coping in the relationships between perceived racism and blood pressure, symptoms of distress, and perceived stress. It is possible that the use of a more pure measure of avoidance coping might contribute to different results if this study were to be replicated.

The PRSL and various aspects of its use in this study, also present some minor limitations to this research. As discussed previously, items on two of the Likert response options (i.e. “0” and “1”) of the PRSL were collapsed after the data was collected and before the analyses were calculated. The justifications, rationale, and appropriateness of this decision were discussed previously. Nevertheless, this did not present the most ideal situation for the analyses as assumptions were necessarily made regarding the fact that participants understood and responded to these options, and the scale as a whole, in the manner that was intended by the authors. This limitation is readily acknowledged, and future use of the PRSL in such research would do well to change the Likert-type scale options to make them more appropriate for the purposes of such a study.

Another limitation of this study concerns the ability of the PRSL to account for individual’s experience of perceived racism. While a much better instrument than many used in previous research, one potential limitation of the PRSL was raised by a few participants. When debriefed, a few participants discussed their thoughts about the fact that on the PRSL, respondents are only asked to report about their experience of racism over the previous 1-year time period. One participant in particular expressed his feeling that had the questionnaire instructed him to report his lifetime experience of racism he would have answered differently, reporting more perceived racism. He indicated that

while he felt he had definitely experienced racism in his lifetime, he believed the academic environment of the university tended to buffer this somewhat, and therefore he had experienced much less racism in the previous 2 years since he had been a student.

The time period regarding which individuals are typically asked to respond on questionnaires is often understandably restricted, in part due to the idea that the accuracy of self-reports begins to diminish over increasing periods of time. However, limiting one's responses to only that experienced during the previous year may preclude individuals from reporting major events, or previous chronic stressors, which while rarer than daily occurrences, may have had major implications as to their effect on one's perceptions, worldview, and physiology. Thus the use of the PRSL instructions in this study, directing individuals to respond only with regards to their experiences in the past year, may have artificially truncated the level of experience reported by some participants.

Directions for Future Research

The results of this study, while providing additional information regarding some questions, have also produced several additional questions for future research to address. One of these major questions regards the replicability of these findings in a community sample that is more representative nationally of the demographics and experience of the U.S. Latino population. As discussed, several key demographic variables present in this study such as age, SES, and educational attainment may be important to the outcome of these analyses. Future research would do well to explore the possibility of a relationship between perceived racism and other stress symptoms in community samples of older, less educated, and less well-to-do participants that may experience multiple oppressions.

Other promising areas for future research in this area to explore include the use of better and more diverse measures of health status. For example, as discussed earlier future research exploring perceived racism and blood pressure might employ the use of ambulatory blood pressure monitors, thus giving a more accurate real-world picture of participant's blood pressure status over time. Studies might also explore the relationship of perceived racism to other physiological measures of stress such as salivary cortisol levels.

Future prospective studies might also be conducted in which possible links and mechanisms of action between perceived racism and other diseases and causes of death are explored. These studies may yield interesting results as there are significant disparities in the U.S. in disease and mortality rates between Latinos and the White majority with respect to other diseases such as diabetes mellitus (Heron & Smith, 2007). These are just a few suggestions of ways in which research in this area might both broaden its scope and hone its accuracy.

There are also several potentially important variables which this study did not explore or control. Some of these variables include racial identity, ethnic identity, level of acculturation, and level of enculturation. In addition to the variables which were measured in this study, each of these variables may have an important effect in moderating or mediating the perception or effect of racism-oriented stress on health and well-being. This possibility seems to be supported by extensive theory about such processes as racial and ethnic identity development that suggest in part, that one's stance, interpretation, and internal perceptions of the experience of racial and ethnic stimuli changes as one develops and evolves with regards to developmental processes (Phinney,

1990; Sue & Sue, 1999). Thus, the variables just mentioned appear to have the potential to be key players in any relationship between the experience of perceived racism and blood pressure and other stress related symptoms.

This study was also limited to looking at within-group differences with regards to perceived racism, blood pressure, and other stress symptoms among Latina/os. While a great deal of research has explored between-group differences in response to racially oriented stressors among African Americans and Whites, this is a question that remains largely unanswered regarding the Latino community. While significant differences in blood pressure and other stress symptoms were not detected within this sample in relation to variations in perceived racism, the possibility remains that with respect to blood pressure, the sample as a whole may differ significantly from their majority counterparts. Unfortunately, data from study participant's White majority counterparts was not collected as part of this study. Such a possibility could be explored in future studies by collecting similar data from study participants' majority group counterparts.

Future research would also do well to continue to explore the role of avoidance coping both in relation to the reporting of perceived racism and regarding its possible effect on blood pressure and other stress symptoms. As has been discussed exhaustively, the measure utilized in this study to control for avoidance coping may not be a pure measure of maladaptive avoidance coping and may contain a significant social support seeking behavior component. This fact appears to obscure a clear understanding of the role of avoidance coping among the variables measured in the present study. It is probable that future studies exploring the same or similar relationships, while utilizing a more pure measure of avoidance coping, may shed additional light on this topic.

Another important possibility to explore in future research regards the direction of influence between the variables in hypothesis 1. It was discovered in the analyses of hypothesis one that perceived racism was correlated with emotion-focused coping, task-focused coping, negative affectivity, and BMI. While explanations have been suggested for these relationships earlier in the rationale and discussion of this study, the direction of these relationships is still unknown. Therefore, it is not yet understood whether these variables contribute to maximized reports of perceived racism, or whether the experience of uncontrollable chronic stressors such as institutional and societal racism may actually facilitate the development of emotion-focused coping strategies and increased negative affectivity.

Any superficial reflection upon one's own experience supports the notion that environmental stressors such as sickness, fatigue, hunger, etc. may contribute to the development and experience of negative emotional states. Thus, it is important not to assume the direction of these relationships when in fact the environmental experience of racism and discrimination may actually facilitate the experience of these coping and affective experiences in individuals. Future research would do well to continue striving to understand the nature and direction of these relationships.

One addition to this study that would greatly enrich data collected in similar future studies would be that of a qualitative component. As mentioned previously in this discussion, some participants provided enriching commentary on their responses and personal experience of racism and discrimination while being debriefed. Systematic collection of participant's commentary regarding his or her experience would likely provide important contextual data allowing more meaningful interpretations of this data.

A qualitative component would also allow for better understanding of specific participant's responses. For example, in this study data for 3 individuals was removed before the analyses were performed due to the suspect and implausible nature of their responses on the perceived racism measure. While it is possible that the participants excluded may have simply been responding randomly, it is also possible that they may have been exaggerating their responses due to excessive or intense personal experience with racism. Unfortunately, qualitative data that may have provided explanations for these high scores was not available for these 3 participants. Thus, it is possible and potentially unfortunate, that the 3 excluded participants may have been some of the most interesting participants in the study as they were reporting the highest levels of perceived racism. Adding even a brief qualitative component to future studies may enrich the data collected and allow better interpretation of outliers such as those observed in this study.

Finally, one of the most important endeavors of future research regarding these present results concerns the further exploration of the significant positive relationship between perceived racism and frequency of visits to a physician. While the primary hypotheses regarding perceived racism and blood pressure and other stress symptoms were not supported, the existence of a significant finding regarding perceived racism and visits to a physician suggests the possibility that some relationship between racism and discrimination related stress and negative health outcomes can and does exist. In the future, research exploring this possibility might illuminate the explanations for this significant finding.

Implications and Concluding Remarks

While the results of this research offer important implications for the study of perceived racism among Latina/os, this is only a beginning. This study is a beginning in that it is one of only a small handful of studies to explore the possible connection between perceived racism, blood pressure, and other stress symptoms among a Latina/o population. It is also an important beginning in that serious efforts were made to control for the effects of what have been thought to be confounding coping and personality variables. Specifically, attempts were made to measure and control for the variance associated with task-focused coping, emotion-focused coping, avoidance coping, neuroticism, and negative affectivity on self-reports of perceived racism, blood pressure, and other stress symptoms. Each of these characteristics is a strength of this current study.

Regarding the effects of confounding variables on the propensity to report perceived racism, this study offers important insights. Specifically, task-focused coping, emotion-focused coping, negative affectivity, and BMI all appear to be significantly correlated with one's propensity to report greater experience of perceived racism on a self-report measure. These results suggest that future research regarding perceived racism must seriously consider and control for the variance in self-reports of perceived racism associated with these variables.

Regarding the prediction of self-reports of perceived racism, one of the most interesting revelations of this data is the relationship between BMI and perceived racism. Possible explanations for this relationship have been discussed including the possibility that overweight Latina/os experience more racism and discrimination due to the influence

of the experience of multiple oppressions. Also discussed was the hypothesis that it may be less psychologically threatening to explain discriminatory treatment in terms of race or ethnicity than one's weight or appearance. This appears to be an important and insightful finding and hopefully a focus of future studies seeking to better understand this relationship.

The results of this study also suggest that among relatively young, Latina/o university students the experience of perceived racism is not predictive of either blood pressure status, symptoms of distress, or perceived stress. Thus, findings from these specific analyses do not provide evidence for the hypothesis that stress from the experience of perceived racism contributes to higher blood pressure, symptoms of distress, or perceived stress among relatively young Latina/os. Several aspects of this study however, such as the relatively young age of the participants, the size of the sample, and demographic variables such as educational attainment and SES preclude the widespread generalizability of these specific aspects of the results.

The ability to significantly predict frequency of visits to a physician from self-reports of perceived racism does support the tenability of hypotheses that stress from perceived racism does contribute in some way to negative health outcomes even in young Latina/os. This finding seems to build upon previous research suggesting that racism and discrimination have substantially important implications for the mental and possibly physical health of individuals of color (Brondolo et al., 2003; Williams et al., 2003; Harrell et al., 2003). Future research will continue to discern the subtleties of this potentially important relationship detected in this study.

Regarding the prediction of blood pressure, symptoms of distress, and perceived stress among Latina/o college students, this study provides some interesting insights regarding other variables measured in this study. First, this study provides additional support for theories implicating social support as a protective factor with regards to heart health. In this study, social support seeking behavior, as measured by aspects of the CISS Avoidant coping scale, was significantly and inversely predictive of both systolic and diastolic blood pressure.

Second, neuroticism was also inversely and significantly predictive of diastolic blood pressure among the entire sample and of systolic blood pressure also, after all smokers were removed from the analyses. Potential explanations were offered for this unexpected finding, including the possibilities that those high in neuroticism are more meticulous about complying with recommended healthy lifestyle practices or that those high in neuroticism actually respond defensively and do not endorse items perceived as being socially undesirable. Current research doesn't seem to offer adequate evidence or explanations for this unanticipated finding.

Regarding the prediction of symptoms of distress, this study suggests that both neuroticism and negative affectivity are significant predictors. This result seems to have two plausible implications. One implication includes the possibility that the self-report measurement of symptoms of distress contains a significant neuroticism and negative affectivity component. This possibility is consistent with previous research indicating a substantial negative affectivity component in the measurement of self-reports of health complaints and of stress and non-stress related symptoms (Watson & Pennebaker, 1989; Costa & McRae, 1987). A second implication is that negative affectivity and neuroticism

contribute to the experience of symptoms of distress, including somatic symptoms. Both of these conclusions appear to be tenable and will be clarified in future studies.

Neuroticism and negative affectivity, as well as emotion-focused coping and BMI were found to be predictive of perceived stress. Similar explanations to that just mentioned regarding symptoms of distress also seem to account for the relationship between neuroticism, negative affectivity, and emotion-focused coping and perceived stress. Specifically, it is likely both that the measurement of self-reports of perceived stress contains a significant component of these three variables as well as the possibility that these three variables contribute to the experience of stress. The presence of a predictive relationship between BMI and perceived stress is also quite interesting. While it would be easy to understand how higher BMI might be predictive of stress, future research will determine whether this is a direct relationship or whether some third factor may account for both BMI and perceived stress.

Several questions are also raised by the results of this study. One major question regards the generalizability of these results to a population that is more demographically variable than that of this study. While offering some important insights, this study does not answer the question of whether a relationship between perceived racism may be predictive of blood pressure and other stress symptoms in the larger Latina/o population within the U.S. It is hoped that this study will serve as a guide to making suggested modifications and then exploring these questions among a demographically diverse Latino community sample. Such studies would shed light on the possibility that physiological stress processes are at work with regards to perceived racism but that the

participants in this study were protected because of age, educational background, SES, or any of a number of variables.

Questions were also raised in this study regarding the possibility that cultural worldviews present among some Latina/o individuals interact with the experience of perceived racism to mitigate any physiological effects from these experiences. One construct discussed is that of fatalismo. To some extent fatalismo comprises the traditional view that some negative life events are to be expected, are out of one's control, and must be accepted while also including aspects of religious beliefs about one's destiny (Sue & Sue, 1999; Guzman et al., 2005). Worldviews such as fatalismo or an emphasis on a "being" rather than a "doing" orientation may interact with the experience of potentially stressful racially/ethnically oriented experiences to produce differential effects on health or to buffer the negative effects of these experiences. Thus, cultures aspiring to different worldview orientations, while experiencing similar discriminatory experiences may perceive, interpret, and internally respond to these differently. These varied responses might be expected to produce differential outcomes with regards to perceived racism. This is one possible direction that perceived racism and health research may move in the future as it seeks to discern the subtle realities of these phenomena in the lives of individuals of color.

Presently, a mass of research continues to surface suggesting that there are very real consequences of the experience of stress to both mental and physical health (Clark et al., 1999; Krantz & McCeney, 2002). This study has attempted to clarify and advance one branch of that research endeavoring to understand the effects on physical and mental health of stress related to perceived racism. It is hoped that future researchers will

continue to endeavor to clarify the nature and effects of racially oriented stress on mental and physical health. Ultimately, it is hoped that a clear understanding of these relationships will produce interventions at both the individual and societal levels that will serve to improve the quality, quantity, and equality of the lives of individuals of color.

As is evident, the hypotheses presented at the outset of this study were only supported in part. As such, the form and type of interventions that may arise from continued research in this area can only be tentatively proposed based upon current evidence from this and related fields, such as the general literature on coping. It might be imagined for example, that if task-focused coping proves to be adaptive with regards to the experience of discrimination and racism, as it has with other stressors, then interventions may be created which help individuals find constructive and empowering ways in which to engage racism and discrimination both on societal and individual levels.

On the other hand, as this study begs the question, it may be found that in some instances avoidance coping serves a useful and adaptive function. Future research exploring this possibility may identify the complexities of when and how mindful avoidance coping could be adaptive psychologically and or physiologically in dealing with racism and discrimination related stress. For example, it may prove that for one's individual cardiovascular and or psychological health, mindfully avoiding racially oriented stressors may be beneficial, similarly to how a military veteran might find it adaptive for his mental and physical health to avoid watching news reports of current military conflicts. In this case interventions might take the form of helping individuals to determine when one should address racism and discrimination by acting in a task-oriented manner and when it might be more beneficial to ignore or avoid a given stressor.

In either case, the results of this study seem to suggest that seeking social support from important others provides a physiological buffer against elevations in blood pressure. Therefore, as of the present time, interventions which help individuals to connect with others in meaningful ways could be useful in buffering the cardiovascular effects and likely the emotional and psychological effects of perceived racism related stress. These and other possible real world interventions may be developed as greater understanding and knowledge accumulates with respect to perceived racism and its relationship to physiological and mental health.

What is certain is that the role of racism and discrimination in the lives of individuals of color is being increasingly acknowledged and individual and societal efforts are being organized to reduce the effects of social injustice. Concentrated future efforts will certainly produce effective interventions to benefit the lives of those that represent the rich diversity of our society. Through advancements in research and clinical interventions and increasing social conscience and discomfort with the status quo, it is the hope that all members of our society will someday be brought into full fellowship and equality and that the effects of racism will be diminished and eradicated.

Appendix A

Participant ID #: _____

Instructions: Depending on the question, please either circle or fill in the appropriate response in the space provided.

Your participation in this study is voluntary and completely confidential. Each question on this form captures a phenomenon that is important to our being able to accurately interpret your data. We greatly appreciate your participation and cooperation.

1. Indicate your age in the space provided: _____
2. Indicate your gender:
 - A Male
 - B Female
3. What is your current GPA?: _____
4. What year are you in school?
 - A Freshman
 - B Sophomore
 - C Junior
 - D Senior
 - E Graduate student
5. Indicate your family's estimated yearly household income:
 - A Less than \$15,000
 - B \$15,000-\$34,999
 - C \$35,000-\$54,999
 - D \$55,000-\$74,999
 - E Above \$75,000
6. Do you identify as being Latino/a, Hispanic, Chicano, etc.?
 - A Yes
 - B No
7. Please indicate your ethnic and racial background from the choices below. Please read all of the response options before answering:
 - A Latino/Hispanic of **black** racial descent
 - B Latino/Hispanic of **white** racial descent
 - C Latino/Hispanic of **Latin American Indian** (e.g. Mayan, Aztec, etc.) descent
 - D Latino/Hispanic of **Mixed** racial descent, please explain: _____
 - E Other, please explain: _____

8. Please indicate the country of origin of your oldest known relative? (e.g. Mexico, Honduras, Puerto Rico, Cuba, Chile, Spain, U.S., etc.):

9. Were you born in the United States?

- A Yes
- B No

If "no" how long have you lived in the United States? _____

10. Approximately how often do you currently engage in mild to moderately intense physical activity for 30 minutes or longer?

- A Never
- B 4 times/month or less
- C 1-2 times/week
- D 3-5 times/week
- E 6 or more times/week

11. Do you currently smoke?

- A Yes, regularly
- B Yes, Occasionally
- C No

If yes to "A" or "B," on average how many cigarettes do you smoke each day? _____

When was the last time you had a cigarette? _____

How many cigarettes do you smoke each week? _____

How many days do you smoke each month? _____

12. Have you been diagnosed by a doctor as having high blood pressure/hypertension?

- A Yes
- B No

13. Do you currently take medication for high blood pressure/hypertension?

- A Yes
- B No

14. Is there a history of high blood pressure/hypertension in your family?

- A Yes
- B No

If yes to number 14, describe your relationship to this/these individual(s) (e.g. mother, grandfather, etc.):

15. How frequently have you visited a doctor in the past 2 months?

- A 0 times
- B 1 time
- C 2-3 times
- D More than 3 times

Appendix B

NEO PI-R Sample Questions

This questionnaire contains 48 statements. Please read each item carefully and circle the one answer that best corresponds to your agreement or disagreement.

Circle “SD” if the statement is definitely false or if you **strongly disagree**. SD D N A SA

Circle “D” if the statement is mostly false or if you **disagree**. SD **D** N A SA

Circle “N” if the statement is about equally true or false, if you cannot decide, or if you are **neutral** on the statement. SD D N A SA

Circle “A” if the statement is mostly true or if you **agree**. SD D N **A** SA

Circle “SA” if the statement is definitely true or if you **strongly agree**. SD D N A **SA**

There are no right or wrong answers, and you need not be an “expert” to complete this questionnaire. Describe yourself honestly and state your opinions as accurately as possible.

1. I often feel helpless and want someone else to solve my Problems SD D N A SA
2. I am easily frightened. SD D N A SA
3. I am known as hot-blooded and quick tempered. SD D N A SA
4. I often feel tense and jittery. SD D N A SA

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Appendix C

IRB# 2005-09-0103

INFORMED CONSENT TO PARTICIPATE IN RESEARCH

The University of Texas at Austin

You are being asked to participate in a research study. This form provides you with information about the study. The Principal Investigator (the person in charge of this research) or his/her representative will provide you with a copy of this form to keep for your reference, and will also describe this study to you and answer all of your questions. Please read the information below and ask questions about anything you don't understand before deciding whether or not to take part. Your participation is entirely voluntary and you can refuse to participate without penalty or loss of benefits to which you are otherwise entitled.

Title of Research Study:

Assessing the Relationship Among Measures of Stress and Coping

Principal Investigator(s) (include faculty sponsor), UT affiliation, and Telephone Number(s):

Principal Investigator: Scott D. Hosford, M.S.
Department of Educational Psychology, Counseling Psychology
Phone: (512) 338-4850

Faculty Sponsor: Christopher J. McCarthy, Ph.D.
Department of Educational Psychology, Counseling Psychology
Phone: (512) 471-0368

Funding source: Not applicable

What is the purpose of this study?

The purpose of this study is to explore the relationship between coping, personality, and various measurements of stress. Various demographic information including, age, gender, average family income, etc. will also be collected and assessed to explore its relationship to stress and coping. This study is projected to include approximately 150 participants from The University of Texas at Austin.

What will be done if you take part in this research study?

Participation in this study will require attending only one appointment lasting approximately 90-120 minutes. The protocol for the research study will be conducted by doctoral students in Counseling Psychology. If you decide to participate in this study you will first review and sign the consent form. You will then be directed to a private study room in which you will be asked to relax for 5-10 minutes. After a period of relaxation, a researcher will take simple measurements of blood pressure (using an electronic blood pressure monitor and cuff on the arm), height, and weight. You will then be asked to complete a series of self-report questionnaires, including a sheet of demographic information. Upon completion, you will be debriefed by researchers and any questions or concerns you have will be addressed in full at the end of the study.

What are the possible discomforts and risks?

The risks associated with your participation in this study are minimal and it is not expected that you would experience any risk or discomfort from participation in the study. Although it is not expected, you may experience anxiety or distress in response to having measurements taken of blood pressure, height, or weight, or in completing self-report measures. However, this anxiety is not considered to be outside of the range of normal, everyday stress. If you feel that you are experiencing excessive distress, you have the option to withdraw participation from the study at any time.

Treatment will not be provided in this study. If you experience any distress during any portion of the study please immediately report this to the researchers so that they may assist you. In addition, if you have any distress following the study, you are encouraged to contact the researchers (see top of this form) who will provide you with information about possible resources you may find useful. You may also call the UT Counseling and Mental Health Center at (512) 471-3515 or the Austin-Travis County Mental Health Services Counseling Helpline at (512) 472-4357. If you have questions or concerns in response to measurements of blood pressure or weight taken at the time of the study we encourage you to contact the University of Texas at Austin Health Services Center at (512) 471-4955 or the UT 24 hour Nurse Advice Line (512) 475-6877. If you wish to discuss the information above or any other risks you may experience, you may ask questions now or call the Principal Investigator listed on the front page of this form.

What are the possible benefits to you or to others?

This study will contribute to research examining the relationship between coping and various measures of stress. Research on the particular variables in this study is fairly new. Information from studies such as this can be used to enhance individual's everyday lives as well as improve understanding and treatment in the therapeutic context.

If you choose to take part in this study, will it cost you anything?

There is no cost associated with participation in this study.

Will you receive compensation for your participation in this study?

Participants who complete this study through the Educational Psychology subject pool will receive the predetermined research participation credit(s) as outlined by the administrators of the Educational Psychology subject pool. Participants **completing** this study who are not associated with the Educational Psychology subject pool and who are not receiving course credit for their participation will be entered into a drawing for one of three \$50.00 cash prizes. Those participants chosen as the winners will be contacted by telephone or email (whichever way you indicate you would prefer to be contacted) and informed of how they can obtain their prize.

What if you are injured because of the study?

There is no known physical risk involved in participating in this study. If injuries occur as a result of study activity, eligible University students may be treated at the usual level of care with the usual cost for services at the University of Texas at Austin Health Services Center, but no payment can be provided in the event of a medical problem.

If you do not want to take part in this study, what other options are available to you?

Participation in this study is completely voluntary. You are free to refuse to be in the study, and your refusal will not influence current or future relationships with The University of Texas at Austin. If you choose not to participate, as outlined by the administrators of the Educational Psychology subject pool, you can participate in a different study or complete an additional assignment to acquire the necessary credit. If your participation is unassociated with the Educational Psychology subject pool, you are also free to discontinue your participation at any time and may disregard the previous instructions regarding obtaining course credit.

How can you withdraw from this research study and who should you call if you have questions?

If you wish to stop participation in this research study for any reason, you should contact: Scott Hosford at (512) 338-4850. You are free to withdraw your consent and stop participation in this research study at any time without penalty or loss of benefits for which you may be entitled. Throughout the study, the researchers will notify you of new information that may become available and that might affect your decision to remain in the study.

In addition, if you have questions about your rights as a research participant, or if you have complaints, concerns, or questions about the research, please contact Clarke A. Burnham, Ph.D., Chair, The University of Texas at Austin Institutional Review Board for the Protection of Human Subjects, (512) 232-4383. You may also contact the Office of Research Compliance and Support at (512) 471-8871.

How will your privacy and the confidentiality of your research records be protected?

Your identity will be kept confidential, and no identifying information will be associated with any of the written materials and physiological data you provide. We will take several steps to maintain your confidentiality and the confidentiality of the information you provide as a participant in this study. First, all experiment materials will be coded so that no personal identifying information is visible on them. These materials will also be stored in a file cabinet in a locked office at all times. Only the researchers will have access to the research materials. If the results of this research are published or presented at scientific meetings, your identity will not be disclosed.

One limitation of confidentiality of which you should be aware involves whether you currently have thoughts of hurting yourself or someone else. If you indicate to the researcher that you are having thoughts of hurting yourself or someone else at any point during the study, we will be obligated to take appropriate steps to ensure your safety and that of others.

If in the unlikely event it becomes necessary for the Institutional Review Board to review your research records, then the University of Texas at Austin will protect the confidentiality of those records to the extent permitted by law. Your research records will not be released without your consent unless required by law or a court order. The data resulting from your participation may be made available to other researchers in the future for research purposes not detailed within this consent form. In these cases, the data will contain no identifying information that could associate you with it, or with your participation in any study.

Will the researchers benefit from your participation in this study?

The researchers will not benefit from your participation in this study beyond satisfying program requirements and publishing the results of the study.

Signatures:

As a representative of this study, I have explained the purpose, the procedures, the benefits, and the risks that are involved in this research study:

Signature and printed name of person obtaining consent

Date

You have been informed about this study's purpose, procedures, possible benefits and risks, and you have received a copy of this form. You have been given the opportunity to ask questions before you sign, and you have been told that you can ask other questions at any time. You voluntarily agree to participate in this study. By signing this form, you are not waiving any of your legal rights.

Printed Name of Subject

Date

Signature of Subject

Date

Signature of Principal Investigator

Date

Appendix D

Debriefing Form

The Relationship of Perceived Discrimination, Neuroticism, and Coping Strategies to Symptoms of Stress Among Latino College Students

This form has been provided to you so you may have a more complete understanding of how the investigator will use the information you provided on the written assessments and physiological measures that you have just completed.

Current research suggests that emotional stress associated with discrimination may be related to stress symptoms among members of minority groups. Although some research has been completed, this potential relationship is not entirely clear, and additional research, such as the study in which you have just participated, is needed. This study examines the relationship between perceptions of discrimination, strategies for coping, personality characteristics, blood pressure and other measures of stress. Any information provided by you during the experiment will be kept completely confidential and will not in any way affect your standing with The University of Texas at Austin.

The examiner will be happy to answer any further questions you might have about the study at this time. We also encourage you to contact the UT Counseling & Mental Health Center (512) 471-3515 or the Austin–Travis County Mental Health Services Counseling Helpline (512) 472-4357 if you would like to follow up with a mental health professional. If you have any further questions regarding measures of blood pressure or other health status we encourage you to contact the University of Texas at Austin Health Services Center at (512) 471-4955 or the UT 24 hour Nurse Advice Line (512) 475-6877.

If at any point you should wish to contact the director of this project with questions or feedback, contact information is provided below.

Again, thank you for your participation and cooperation in this study.

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Vita

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