AN ANALYSIS OF THE ASSOCIATION BETWEEN PERCEIVED DISCRIMINATION AND SELF-REPORTED HEALTH AMONG UNIVERSITY STUDENTS IN SOUTHWEST FLORIDA

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Abstract

The experience of discrimination is a complex phenomenon. At present, there are few studies that have captured the experience of discrimination on a predominately white university campus. This study was designed to investigate the association between perceived discrimination and self-reported health outcomes among university students in Southwest Florida. The stratified cluster random sample consisted of 527 students attending classes on the main campus of a university in Southwest Florida. This analysis of the association between perceived discrimination and self-reported health was an important contribution to the literature because information was gained regarding: 1) the frequency of discrimination 2) how perceived discrimination can negatively affect people from all racial/ethnic backgrounds, 3) the impact of discrimination on general health, and 4) how discrimination can contribute to unhealthy behaviors. This study addressed three research questions: 1) Is perceived discrimination significantly associated with self-reported psychological and physiological health outcomes among university students? 2) Is race/ethnicity, gender, sexual orientation, or socioeconomic position (SEP) associated with exposure to discrimination? 3) Is perceived discrimination a unique predictor of mental and physical health outcomes? For this study a new instrument, Impact of Discrimination on Health, was constructed to measure the association between perceived discrimination and self-reported health among university students. MANOVA, ANOVA, and simple linear regression were performed to discover the relationship among health, ethnicity, income/SEP, gender, sexual orientation, and perceived discrimination.

Keywords: Perceived Discrimination; Health; Racism; Ethnicity, Psychological Distress
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CHAPTER I
INTRODUCTION TO THE STUDY

This introductory chapter presents an overview of the issues relative to self-reported discrimination and health outcomes as they relate to the perceptions of university students. This chapter consists of the following major sections: Background Information, Statement of the Problem, Brief Summary of the Literature, Statement of Purpose, Research Questions, Definition of Terms, Independent Variables, Dependent Variable, Study Overview, and Significance of the Study.

Background Information

The experience of discrimination is a complex, multidimensional phenomenon. Perceived discrimination has been globally studied with regard to its impact on health (Gee, 2002; Kelaher et al., 2008; McNeilly et al., 1996; Williams, 2005). Although the expression of discrimination has been greatly reduced in recent decades, more subtle and chronic forms of discrimination are still very real for certain groups in American society (Gee, 2002; Kelaher et al., 2008; Pascoe & Richman, 2009). Several researchers have found that discrimination can cause harmful psychological effects across a range of mental health outcomes. These include depression, psychological distress, and anxiety (Gee & Walsemann, 2009; Paradies, 2006; Williams, Neighbors, & Jackson, 2003). Researchers have hypothesized that discrimination, a significant psychological stressor, has been associated with specific types of physical health problems, such as: cardiovascular disease (CVD), hypertension, self-reported poor health, breast cancer, as well as potential risk factors for disease, such as obesity, and substance abuse (Brondolo et al., 2008; Cardarelli et al., 2010; Williams & Mohammed, 2009). Cardarelli et al.
(2010) support the association between discrimination and an increased risk for coronary artery disease. In the study, 36% of the asymptomatic United States adults from various racial/ethnic backgrounds, who self-reported discrimination, showed increased risk of coronary artery calcification, a marker for atherosclerosis.

Pascoe & Richman (2009) theorized that over time, repeated exposure to discriminatory experiences can influence health through the release of negative stress responses. It is these adverse stress responses, both physiological and psychological, that can ultimately lead to mental and physical illness. In addition to triggered negative stress responses, discrimination experiences may affect health by decreasing an individual’s self-control resources, potentially increasing participation in unhealthy behaviors and decreasing participation in healthy behaviors. The implication, when applied to the health domain, is that when trying to cope with discriminatory experiences, individuals are left with fewer coping skills for making healthy behavior choices (Pascoe & Richman, 2009).

Statement of the Problem

According to the research, perceived discrimination is one of the main mechanisms explaining health disparities in many populations across the country (Gee, 2002; Kelaher et al., 2008; Pascoe & Richman, 2009; Pieterse & Carter, 2007). A meta-analytic review of 192 studies highlighted a strong relationship between perceived discrimination and negative health outcomes; these outcomes include mental health, physical health, daily behaviors, and coping strategies (Major et al., 2002; Paradies, 2006; Williams & Mohammed, 2009). Racial discrimination specifically, plays an important role in modifying the relationship between ethnicity, education, socioeconomic, and health status (Pascoe & Richman, 2009). Exploring causes of
discrimination and health disparities has proven to be problematic due to the fact that attribution of the causes of racial discrimination and ethnic disparities has fluctuated over time between socioeconomic position (SEP) and cultural differences (Sellers & Shelton, 2003). The interrelationship between perceptions of racism and other contextual factors, such as SEP, gender, sexual orientation, and religion has been noted in the literature and warrants further research.

According to Krieger (2000), it should be noted that while ‘self-reported experiences’ must be perceived, not all ‘perceived experiences’ are necessarily reported. The documentation of discrimination depends upon individuals’ willingness or ability to report which can be a limitation as far as the actual prevalence of discrimination. In a systematic review of 138 studies, Paradies (2006) revealed that the associations between self-reported racial discrimination and health is strongly associated with a range of negative mental health outcomes including psychological distress, anxiety, depression, and stress. About half of the studies in this review that measured self-assessed health status found racial discrimination was also associated with overall poor health status (Paradies, 2006).

**Brief Summary of the Literature**

Discrimination permeates much of society and is highly reported among African Americans (Taylor, Kamarck, & Shiffman, 2004). Through a combination of meta-analyses and research syntheses, current research has focused on the direct link between perceived discrimination and health outcomes (Gee, 2002; Harrell, Hall, & Taliaferro, 2003; Kelaher et al., 2008; Pascoe & Richman, 2009; Pieterse & Carter, 2007; Williams et al., 2003). In addition, the literature has provided compelling evidence that pathways
between perceived discrimination and health behaviors and the pathways between perceived discrimination and physiological and psychological stress responses can impact health negatively (Kelaher et al., 2008). According to Pascoe and Richman (2009) with regard to examining various types of discrimination, past studies generally contained scales or questions regarding perception of discrimination within a variety of domains, such as poor service and unfair treatment in public situations, derogatory comments, and harassment.

Discrimination is a pervasive phenomenon in the lives of many racial minorities. It can take the form of both blatant (e.g., being called a derogatory name) and subtle behaviors (e.g., being stared at by security guards while shopping) that permeate the daily lives of individuals (Sellers & Shelton, 2003). The majority of research on the relationship between racial discrimination and psychological health has focused on African American populations (Kelaher et al., 2008; Paradies, 2002; Pieterse & Carter, 2007; Sellers & Shelton, 2003). Currently, the accepted understanding is that racism as evidenced by discrimination, is generally associated with poorer health status and that this association is the strongest in the case of mental health (Williams et al., 2003). Paradies (2002) stated that African Americans have relatively high perceptions of racial discrimination, between 75% and 85% for lifetime exposure to discrimination. According to the research, approximately 60% or more of African American adults typically encounter some form of discrimination in their lives (Kessler et al., 1999; Sanders-Thompson, 2002; Williams, Yu, Jackson & Anderson, 1997).

In addition to minority adults experiencing discrimination or unfair treatment, D’Augelli and Hershberger (2003) found that 41% of African American college students
reported occasionally hearing disparaging racial remarks, 41% reported frequently hearing such remarks, and 59% reported that they had been the target of racial insults at least once or twice. In a large-scale national survey, Kessler et al. (1999) found a lifetime prevalence rate of 61% for African Americans experiencing day-to-day racial discrimination. Kessler’s (1999) research seemed to suggest that racial discrimination is a common occurrence for racial minorities, particularly African Americans (Sellers & Shelton, 2003).

Statement of Purpose

Few researchers have examined the relationship between perceived discrimination and self-reported health among a predominantly white student population; ample research as examined racial discrimination among minority groups (Chae & Walters, 2009; Gee, 2002; Pieterse & Carter, 2007; Williams et al., 2003). To help fill this research gap, the researcher examined the association between self-reported discrimination and mental and physical health status among a Southwest Florida university student population with the intent of determining whether or not discrimination is a major factor that can negatively affect student health. The purpose of this study was to identify an association between perceived discrimination, ethnicity, gender, sexual orientation, SEP, and self-reported health status among university students attending a Southwest Florida university.

A growing body of evidence supports the negative effects of racial discrimination on health outcomes, especially among minority groups such as African American populations (Kelaher et al., 2008; Paradies, 2002; Pieterse & Carter, 2007). However, the research is limited with identifying the impact of self-reported discrimination on health status among individuals who are predominately white. Other than racial discrimination,
students can experience discrimination due to: gender, sexual orientation, religion, physical appearance, educational level, and SEP (Gee, 2002; Bellmore et al., 2012). Therefore, in addition to investigating the association between perceived discrimination and self-reported health among approximately 700 predominantly white students attending a university in Southwest Florida, the researcher explored the frequency of various forms of discrimination, situational discrimination, and the impact of discrimination on one’s life experiences that occur among specific sociodemographic groups.

**Research Questions**

This study was an exploratory study. The goal of the research was to contribute to the existing body of empirical evidence that suggests an association between perceived discrimination and self-reported health outcomes among a population of university students.

This study was guided by three overarching research questions:

1. Is perceived discrimination associated with self-reported psychological and physiological health outcomes among university students?
2. Is race/ethnicity, gender, sexual orientation, or socioeconomic position associated with exposure to discrimination?
3. Is perceived discrimination a unique predictor of health outcomes?

**Definition of Terms**

*Coping Behaviors*- are defined as the efforts in which one engages to protect oneself from the adverse effects of stress (Pascoe & Richman, 2009).

*Functional Health Outcomes*- are operationally defined as the extent to which an individual currently performs their normal or usual behaviors & activities without
limitations due to health problems as measured by the Quality Metric’s Standard SF-12v2 Health Survey (Ware et al., 2001).

*Gender Discrimination-* is defined as any exposure to physical attack, verbal abuse, or mistreatment in any situation due to one’s gender (Pascoe & Richman, 2009).

*Group Identification-* is defined as the level of importance of an individual’s racial group, gender, religion, sexual orientation to one’s self concept (Pascoe & Richman, 2009).

*Mental Health Summary-* is operationally defined as self-reported measures of mental health from the mental component of the Quality Metric’s Standard SF-12v2™ Health Survey. This scale will assess psychological distress and well-being, vitality, social and role functioning (Ware et al., 2001).

*Perceived Stress-* is defined as the degree to which a situation in one’s life is appraised as stressful (Cohen et al., 1983).

*Physical Health Summary-* is operationally defined as self-reported measures of overall assessment of physical health from the physical health component of the Quality Metric’s Standard SF-12v2 Health Survey. This scale will assess both every day physical functioning and evaluation of one’s ability to perform physical activity (Ware et al., 2001).

*Psychological Distress-* is determined from subscales including: anxiety, depression, worry, and loss of behavioral/emotional control (Pieterse & Carter, 2007)

*Racial Discrimination-* is defined as any exposure to physical attack, verbal abuse, or mistreatment in any situation due to one’s racial characteristics (Krieger et al., 2005).

*Self-Reported Discrimination-* is defined as any self-reported exposure to physical attack, verbal abuse, or mistreatment in any situation due to one’s race/color/ethnicity, age,
gender, physical appearance, religion, socio-economic position (SEP), or sexual orientation; a negative attitude, judgment, towards an individual or members of a group; measure of major experiences of unfair treatment (Kelaher et al., 2008; Krieger et al., 2005).

*Sexual Discrimination* - is defined as any exposure to physical attack, verbal abuse, or mistreatment in any situation due to one’s sexual orientation or sexual preference (ILGA, 2012).

*Socioeconomic Position* - is operationally defined by combined family and individual income, employment status, and possession of medical insurance (Kelaher et al., 2008).

**Independent Variables**

The sociodemographic independent or predictor variables in this study were: ethnicity, gender, sexual orientation, and socio-economic position (SEP) as measured by combined family/individual income and possession of medical insurance. The discrimination variable was total experiences of discrimination (EOD) or unfair treatment within a social or interpersonal context. The three self-reported discrimination sub variables were: 1) frequency of discrimination (i.e. physical attack, verbal abuse, any exposure to discrimination, or unfair mistreatment due to gender, race/color/ethnicity, or sexual orientation), 2) the situation (i.e. work, school, shopping) in which discrimination occurred, and 3) impact of discrimination on one’s life. This study included the use of four validated instruments to measure frequency of discrimination (unfair treatment) and global impact of discrimination. Items from four validated instruments were utilized on the questionnaire to measure ‘self-reported’ discrimination. These instruments are: Williams’s et al. (1997) *Everyday Discrimination and Major Experiences of*
Discrimination Scales, Kreiger’s et al. (2005) Experiences of Discrimination Scale, and Brondolo’s et al. (2005-21) Brief Perceived Ethnic Discrimination Questionnaire. Items from Williams’s and Brondolo’s instruments were used to measure type/frequency of discrimination, items from Krieger’s instrument were used to measure situational discrimination, items from Williams’s, Major Experiences of Discrimination Scale were used to measure impact of discrimination.

**Dependent Variable**

The dependent or criterion variable was self-reported health status. Self-reported health status was assessed using selected items from two validated instruments. These instruments were the Medical Outcomes Study Standard Short Form (SF-12v2) and the Perceived Stress Scale (PSS).

*The Quality Metric’s Standard SF-12v2--Health Survey* is a health survey that uses 12 questions to measure functional health and well-being. The standard SF-12v2 which is a practical and valid measure of physical and mental health will be used to sample a large population to measure, over a 4-week recall period, self-reported health outcomes (Ware et al., 2001).

The SF-12v2 measures eight health domains within the physical & mental health components. These eight health domains are: Physical Functioning, Role-Physical, Bodily Pain, General Health, Vitality, Social Functioning, Role-Emotional, and Mental Health. Each survey provides psychometrically-based physical component summary (PCS) and mental component summary (MCS) scores. The SF-12v2 will be used to procure data related to respondent’s overall health status.
Cohen developed the *Perceived Stress Scale* (PSS) in 1983. The PSS is the most widely used psychological instrument for measuring the perception of stress (Cohen, Kamarck, & Mermelstein, 1983; Cohen & Williamson, 1988). It is a measure of the degree to which situations in one’s life are appraised as stressful. Items were designed to measure how unpredictable, uncontrollable, and overloaded respondents find their everyday lives. The original 10 item scale includes a number of direct queries about current levels of experienced stress. Moreover, the questions are of a general nature and hence are relatively free of content specific to any sub-population group.

Cohen’s PSS assesses feelings and thoughts during the last month. In each case, respondents are asked how often they felt a certain way. For each item participants respond on a 5-point scale ranging from 0 = *never* to 4 = *very often*. Four items that are worded in a positive direction will be reverse-coded and the responses to the 4 items are then summed to create a psychological stress score, with higher scores indicating greater psychological stress. The internal reliability (Cronbach’s \( \alpha \)) for the PSS-10 was .78 in the L. Harris Poll sample and .91 in both the 2006 and 2009 eNation samples (Cohen & Janicki-Deverts, 2012). Norm data was collected from 2,387 respondents across the United States. Cohen’s (1983) modified 4 item PSS, based on the 10 item PSS will be used to procure data related to the respondent’s perception of stress.

**Study Overview**

Until recently, little research has documented the impact of exposure to discrimination on a non-minority university student’s physiological and psychological well-being. Although significant research literature has developed surrounding negative attitudes and behaviors toward minorities, significantly less attention has been paid to the
mental and physical health consequences of discrimination on a non-minority group member (Sellers & Shelton, 2003).

Several researchers began to conceptualize African Americans’ experiences with racial discrimination within a stress and coping framework (e.g. Harrell, 2000; McNeilly et al., 1996; Sellers & Shelton, 2003; Utsey, 1999). The stress and coping model most often used is the transactional model of stress and coping (Lazarus & Folkman, 2004). According to this model, psychological stress (e.g. caused by exposure to discrimination) is the result of a transaction between situational characteristics and personal characteristics that leads a person to experience an event as stressful. Thus, conceptualizing discrimination within such a framework allows for personal characteristics (as well as situational characteristics) to play an important role in the way in which individuals experience a negative event (Lazarus & Folkman, 2004). The intent of Lazarus and Folkman’s study is to explore the relationships among frequency of racial discrimination events, incidences of other forms of unfair treatment (mistreatment), and use of coping skills in response to discrimination experiences.

The study sample consisted of approximately 700 students attending a university in Southwest Florida. The students were randomly selected from the 12,016 projected student population attending 2012 undergraduate fall semester classes. The sampling procedure used was a stratified random cluster sampling by 5 university colleges (College of Arts & Sciences, College of Business, College of Education, College of Engineering, and the College of Health Professions and Social Work). Students enrolled in undergraduate level courses within each college were randomly selected to participate. After examining data from the sample of Southwest Florida university students, the
relationship between perceived discrimination and self-reported health outcomes was correlated and analyzed using multiple linear and logistic regressions.

**Significance of the Study**

Several researchers, (Brondolo et al., 2008; Gee, 2002; Harrell et al., 2003; Pieterse & Carter, 2007; Sellers & Shelton, 2003; Williams, 2005) have intensively examined race-based discrimination. It may be that different types of discrimination are related to different outcomes, with some having more detrimental effects on health than others (Brondolo et al., 2008; Williams et al., 2003). Due to the complexity of assessing specific types of discrimination, the research in this area is limited (Pascoe & Richman, 2009). Few studies to date have been able to draw conclusions about the relationship between perceived discrimination and physical or mental health because of the cross-sectional designs of most of the research in this area. This analysis of the relationship between perceived discrimination and self-reported health outcomes was significant because:

1) The study provided insight into the prevalence of different types of discrimination experiences among a Southwest Florida university student population.

2) The relationship between perceived discrimination and the effect on health status, which can lead to mental and physical illness, was examined.

3) Lastly, the general university population may become aware of the negative effects of discrimination, not only among minority groups, but among non-minority groups; chronic experiences of discrimination can place everyone at the highest risk for physical and mental health disparities.
CHAPTER II
LITERATURE REVIEW

Introduction

Discrimination is a ubiquitous social reality that exists in the lives of many individuals, specifically individuals who represent a minority group (Gee, 2002; Kelaher et al., 2008; Sellers & Shelton, 2003; Williams & Mohammed, 2009). According to the research, chronic experiences of discrimination whether based on race, gender, socioeconomic position (SEP), sexuality, or other characteristics, have been shown to have negative implications for health, including mental health and behavioral health outcomes (Bennett et al., 2005; Chae & Walters, 2009; Williams, 2005).

Researchers have found a consistent link between perceived experiences of discrimination and illness (Gee & Walsemann, 2009; Paradies, 2006; Seaton & Yip, 2009; Williams et al., 2003; Williams, 2005). Discrimination or prejudice can take the form of both flagrant and restrained behaviors that permeate the daily lives of individuals living within a social community (Sellers & Shelton, 2003). It is the accrual of these discriminatory experiences over the life course which can diminish overall well-being, often affecting health behaviors (Gee & Walsemann, 2009).

Similar to other social health-related constructs (e.g. stress), discrimination is often difficult to define (Kelaher et al., 2008). A major limitation related to the study of discrimination experiences has surrounded the difficulty of distinguishing between actual exposure to discrimination and perceived exposure to discrimination (Gee, 2002; Kelaher et al., 2008; McNeilly et al., 1996). As with the phenomenon of stress, perceived discrimination is often a ‘subjective experience’, sometimes abstract in nature, and can be
based on an individual respondent’s characteristics, impressions, management skills, and life experiences (Williams et al., 2003).

Many factors such as socioeconomic position (SEP) can affect perceptions of discrimination. For example, Kelaher (et al., 2008) found that increased reporting of racial discrimination is associated with higher levels of education and SEP. One explanation is that “higher SEP may be associated with greater awareness of discrimination and therefore an increased likelihood of perceiving and reporting discriminatory experiences” (Kelaher et al., 2008, p. 1629). In addition, it is also possible that higher SEP members of minority groups are more likely to be exposed to discrimination through frequent interactions with other members of the majority group in employment or social settings. Regardless of actual exposure or perceived exposure to discrimination, discrimination, an undeniable social reality, can be associated with ill-health (Brondolo et al., 2005; Chae & Walters, 2009; Krieger et al, 2005; Paradies, 2006; Williams, 2005).

**Background**

The experience of discrimination is a complex multifaceted dilemma on many levels including: individual, institutional, overt, covert, attitudinal, behavioral, and cultural (McNeilly et al., 1996). As the demographic landscape of the United States continues to evolve and become more ethnically diverse, old prejudices and historical forms of ethnic discrimination are giving way to new ideals based on respect for culturally diverse practices. But at the same time, new forms of ethnic stereotypes and other discriminatory practices have emerged and will continue to emerge (Fisher, Wallace, & Fenton, 2000). Although many forms of discrimination, specifically racial
discrimination, were legally overturned through the civil rights movement of the 1960s, many individuals are still forced to negotiate racial discrimination and other forms of mistreatment in their daily lives (Sellers & Shelton, 2003).

Societal pressures and differential patterns of competition continue to place those of African, Hispanic, Asian, and Native American descent in minority positions within the American stratification system (Chae & Walters, 2009). Those of African descent have a long history of harsh oppression rooted in legally sanctioned slavery and segregation. Those of Hispanic, Native American, and East and South Asian heritage have experienced historical episodes of military conquest, displacement, and economic hardships. Some non-Hispanic whites also share family histories of discriminatory immigration laws and socially sanctioned barriers to educational and employment opportunities. Many individuals from the United States ethnic melting pot have ancestral or personal life experiences with oppression in their native countries and still struggle with these past lived experiences (Chae & Walters, 2009).

Seaton and Yip (2009) proposed that the Integrative Model is often utilized as a theoretical framework for examining perceptions of racial discrimination and other contextual influences among ethnic groups. According to the Integrative Model, American society often stratifies individuals on the basis of social position variables, such as race, ethnicity, social placement, or gender. Discrimination, such as ethnic discrimination is proposed to operate at the macro level through the creation of segregated contexts, which can include residential, social, and psychological dimensions that can directly influence developmental pathways for individuals of color (Seaton & Yip, 2009). There are numerous indicators that any form of discrimination or unfair
treatment in places of employment, housing, education, juvenile justice, and social services continues to be a risk factor for minority members of society (Fisher et al., 2000).

The Problem

Limited attention has been given to experiences of discrimination (EOD) or unfair treatment for the white majority population. It has been suggested that the major forces affecting the health of minority populations are important societal factors that affect the health of the larger society on a smaller scale and in less intensive manner (Williams et al., 1997). Consistent with this perspective, researchers (Kelaher et al., 2008; Seaton & Yip, 2009; Williams, 2005) have indicated that the experience of discrimination or treatment regardless of ethnicity or race may have negative consequences on health outcomes (Kelaher et al., 2008; Seaton & Yip, 2009). It is likely that African Americans or other minority populations will have more frequent and more intense experiences of unfair treatment or discrimination than whites, but perceived racial or ethnic bias, including perceptions of reverse discrimination, could also adversely affect the health of individuals who are white (Williams et al., 1997; Williams, 2005). According to some research, still in its infancy, race-related stress may have a more adverse impact on the mental health functioning of whites as compared to blacks (Williams et al., 1997).

Studying the impact of experiences of discrimination or unfair treatment on the health of all individuals from various ethnic or racial backgrounds (black or white) can highlight the negative impact on health outcomes. According to some researchers, experiences of specific racial or ethnic bias can generate psychic distress and lead to alterations in physiological processes that can adversely affect health status (Cardarelli et
al., 2010; Harrell et al., 2003; Krieger et al., 2005; Noh & Kaspar, 2003; Sanders-Thompson, 2002).

According to Durkin et al. (2012) with regard to the educational environment, students from various ethnic or racial backgrounds and academic levels can be affected by peer aggression due to discrimination or acts of violence. Discriminatory peer aggression is often directed toward individuals of minority groups but can happen to almost anyone regardless of race, physical appearance, gender, age, SEP, or sexual orientation (Abrams, Rutland, & Cameron, 2003; Barrett & Davis, 2008). Peer aggression with or without acts of violence, is a pervasive and often distressing feature of the social environment of children and adolescents with potentially enduring negative consequences (Hunter, Boyle, & Warden, 2007; Smith, et al., 1999). Incidents of peer aggression or discrimination can range from an isolated one time experience to repeated systematic sustained incidents that may take various forms, including physical, verbal, and relational incidents (Durkin et al., 2012; Ostov, 2008).

According to Abrams, Rutland, and Cameron (2003) group membership is cognitively and affectively important to adolescents just as it is adults. Incidents of peer aggression among adolescents typically occur within group contexts related to social issues of social acceptance, in-group norms, acceptability of aggressive behavior, and group rejection. Peer settings such as educational settings (e.g. elementary, secondary, post-secondary) are related to and affected by macro-social contexts (Monks, Ortega-Ruiz, & Rodriguez-Hidalgo, 2008; Verkuyten, 2004). According to Durkin et al, aggression, “which is predicted on the basis of group membership, has the potential to
result in ingrained, socially shared and enduring mutual hostilities” (Durkin et al., 2012, p. 244).

Of particular interest to this investigation are the social interactions among a university academic setting. Like other school systems, universities serve as formative environments in which the relationships between group memberships and social behavior are articulated and appraised on a regular basis (McGlothlin, Edmonds, & Killen, 2008; Stringer et al., 2009).

**Defining Perceived Discrimination**

Freedom from unlawful discrimination is a core principle of democratic societies. Experiences of discrimination can limit an individual’s opportunities to participate fully in social and economic life and can have negative effects on mental and physical well-being (Kelaher et al., 2008; Williams, 2005). Researchers Gee and Walsemann (2009) stated that “discrimination refers to actions initiated and maintained by social institutions and individuals that systematically harm members of socially marginalized groups and reinforce systems of power and privilege” (p.1676). These actions can form a continuum ranging from extreme acts of violence to subtle disrespect. Williams et al. (1997) suggested that discrimination is a structured part of everyday experiences and includes not only major stressful life experiences but recurrent indignities and irritations in everyday situations.

According to Schmitt and Branscombe (2002), the subjective meaning and consequences of perceived discrimination depended on the position of one's group in the social structure. For members of disadvantaged groups, attributions to prejudice were likely to be internal, uncontrollable, and convey widespread exclusion and devaluation of
one’s own social group. For members of privileged groups, the meaning of attributions to prejudice was more localized. Because of such meaning inconsistencies, attributions to prejudice were considerably more harmful for the psychological well-being of members of disadvantaged groups than they were for members of privileged groups.

Pascoe and Richman (2009) suggested that one way to help better understand the experience of discrimination was to conceptualize discrimination as a stressor; a stressor that could broadly impact health. Although most stressful experiences did increase vulnerability to illness, certain kinds of stressors, those that are uncontrollable and unpredictable, are particularly harmful to health, and these characteristics are common to discrimination experiences (Williams & Mohammed, 2009). Along these lines, recent research on the psychological implications of perceived discrimination applied a stress and coping framework to better understand the responses of the targets of prejudice and discrimination (Major, Quinton, & McCoy, 2002). The implication when applied to health outcomes was that individuals who perceived and were left to deal with discrimination, were often left with less energy or resources for making healthy behavior choices (Pascoe & Richman, 2009). Measures of perceived discrimination can include any exposure to physical attack, verbal abuse, and/or unfair treatment due to race, ethnicity, color, gender, SEP, physical appearance, religion, or sexual orientation (Brondolo et al., 2008; Kelaher et al., 2008; Williams et al., 1997).

**Perceived Discrimination - A Multifaceted Perceptual Construct**

The psychological experience of perceiving prejudice or discrimination can be very different depending on whether one belongs to a group that is disadvantaged relative to other groups, or a group that is relatively privileged (Schmitt & Branscombe, 2002;
Sellers & Shelton, 2003). While racial discrimination seems to be a prevalent occurrence for many ethnic minorities, there are likely to be individual differences in the extent to which people appraise any given negative incident as discriminatory. Some individuals are vigilant about seeking out instances of discrimination and are likely to claim discrimination even in the absence of evidence; on the other hand, others may not be vigilant and are likely to minimize discrimination despite the presence of evidence (Sellers & Shelton, 2003). Major, Quinton, and McCoy (2003) provided a detailed description of who is most likely to attribute negative incidents to discrimination. They suggested that the more individuals were identified with their groups and the higher they were in sensitivity to stigmatization; the more likely they were to make attributions to discrimination. In addition, the less individuals endorsed the ideology of individual mobility, the more likely they were to make attributions to discrimination or unfair treatment (Major et al., 2003).

Schmitt and Branscombe (2002) found that members of disadvantaged or minority groups can suffer more from discriminatory or prejudicial experiences due to the fact that outcomes (e.g. SEP, health, perceptions) they received were inferior relative to their advantaged counterparts. The differential severity of these events potentially labeled as discrimination, was also likely to moderate the subjective experience of interpreting those events as due to prejudice and/ or discrimination. Because the magnitude of an event was likely to influence the magnitude of its effects, minor instances of discrimination would have minimal implications for well-being, while more severe discriminatory experiences will have a greater impact (Noh & Kaspar, 2003). Thus, one of the most important ways in which attributions to perceived discrimination differed for
disadvantaged and privileged groups or individuals was in the severity of the type of the events typically attributed to prejudice or unfair treatment.

Branscombe (1998) found that when men and women were asked to describe the disadvantages that they had experienced based upon their gender group membership, women described relatively severe events such as a lack of freedom, fear of sexual assault, and job discrimination. In contrast, men described less severe and more circumscribed events such as having to pay for dates, or being more likely to get a speeding ticket. In a related study Kappen, Branscombe, Kobrynowicz, and Schmitt, (2000) found that women and men listed discriminatory events they had personally experienced and coders, who were blind to the gender of the participants, rated the discriminatory events for their potential life consequences. The events generated by women were coded as having a substantially greater impact on the recipient’s life, compared to the events generated by men. Likewise, when White Americans were asked about their experiences with racial discrimination, they reported relatively minor types of discrimination such as not having exclusively White organizations and being seen as racially biased (Branscombe, Schiffhauer, Schmitt, & Valencia, 2000), while Black Americans report discrimination in a wide range of important life domains including housing, education, and employment. Thus, because of real differences in the severity of the discriminatory events experienced, attributions to prejudice or perceived discrimination were likely to have greater emotional consequences for disadvantaged than for privileged groups (Schmitt & Branscombe, 2002).

Other researchers have supported the idea that attributions to prejudice or discrimination have differential consequences for perceived control among privileged and
disadvantaged groups or individuals. Ruggiero and Marx (1999) found that
disadvantaged groups including: women, African Americans, and members of a
predominantly minority college, who attributed negative feedback to discrimination,
suffered a reduction in perceived control. Among privileged groups, such as: men, White
Amercians, and members of a predominantly white majority college, perceived control
was not affected by attributions to prejudice.

The differential control experienced by disadvantaged and privileged groups or
individuals was likely to have important implications for psychological well-being.
Efficacy-based approaches to self-esteem (Bandura, 1997) suggested that the perception
of control over one’s outcomes was an important component of well-being. According to
Bandura (1997), negative, internal, uncontrollable events (as attributions to
discrimination among disadvantaged groups are likely to be) result in depression and can
even undermine cognitive ability (Kappen et al., 2000). Furthermore, when prejudice or
discrimination is recognized by the disadvantaged, making discrimination claims may be
perceived as a futile effort because they could result in even more negative treatment
from members of the privileged group (Kappen et al., 2000).

Ascriptions to prejudice or discrimination are not simply external attributions that
permit a discounting of the self’s causal role in the production of negative outcomes
(Schmitt & Branscombe, 2002). For members of disadvantaged groups, attributions to
discrimination will be harmful because they implicate an aspect of the self that can result
in pervasive negative treatment over which there may be little control across a wide
variety of situations (e.g. employment, school, etc.). Within privileged groups,
discriminatory treatment is attributed to an aspect of the self that only infrequently results
in negative outcomes (Kappen et al., 2000; Noh & Kaspar, 2003). Because of their instability, attributions to discrimination should be less harmful for privileged individuals or groups than for disadvantaged members of groups, and could even be beneficial if they serve to remind the privileged of the positive treatment that they normally receive (Kappen et al., 2000). Despite these reasons for expecting attributions to discrimination to have very different consequences for disadvantaged and privileged groups, the total relevance of an attribution to prejudice or discrimination cannot be fully appreciated without looking beyond locus, stability, and controllability to other factors that are intimately intertwined with the power of one’s group in the social structure (Noh & Kaspar, 2003).

According to the preponderance of the aforementioned research, attributions to discrimination among disadvantaged members of groups are painful. Thus, Schmitt and Branscombe’s (2002) review is inconsistent with Crocker et al.’s (1991) speculation that “members of stigmatized groups who believe that they are discriminated against or that others are racist should be more likely to attribute negative feedback to prejudice and therefore may be higher in self-esteem” (p. 226). In contrast, Schmitt and Branscombe’s (2002) suggested that the relative frequency of disadvantaged groups’ encounters with prejudice or discrimination experiences make such attributions especially harmful, while the self-protective properties of such attributions are mainly limited to members of privileged groups, who are likely to encounter prejudice relatively infrequently.

**Racial Discrimination**

Racial discrimination is a pervasive phenomenon and permeates much of society (Taylor, Kamarck, & Shiffman, 2004). Clark et al. (1999) defined racism as the “beliefs,
attitudes, institutional arrangements, and acts that tend to denigrate individuals or groups because of phenotypic characteristics or ethnic group affiliation” (p. 805). Contrada et al. (2001) used the more general term ethnic discrimination and defined it as unfair treatment received because of one’s ethnicity. The term perceived racism or ethnic discrimination can reflect exposure to individual, institutional, or cultural events or conditions (Krieger, 2000). Acts of racism or ethnic discrimination can involve stigmatization, exclusion, social distancing, harassment, and violence (Contrada et al., 2001; Krieger, 2000). Harrell, Hall, and Taliaferro (2003) stated that racism operates within “objective life conditions, popular culture, and religious and educational institutions” (p. 243). According to Gee (2008), racism is one of the mechanisms explaining and expanding racial disparities in health. Racism can be defined as “an oppressive system of racial relations, justified by ideology, in which one racial group benefits from dominating another…” (p. S48). Racism entails harmful and degrading beliefs and actions expressed and implemented by both institutions and individuals. According to Seaton and Yip (2009), racial discrimination consists of dominant group members’ actions that have a differential and negative effect on subordinate racial/ethnic groups.

Kessler et al., (1999) suggested that racial discrimination is a normative and pervasive experience for members of minority groups, particularly African Americans. Consistent with this proposition, previous researchers found that the majority of adolescent African Americans reported experiencing at least one discriminatory experience in their lifetime (Gibbons et al., 2004), in the past year (Guthrie et al., 2002), and in the past three months (Prelow, Danoff-Burg, Swenson, & Pulgiano, 2004).
Landrine and Klonoff (2004) noted that 98.1% of an African American sample (N = 153) reported experiences of racial/ethnic discrimination in the past year. Of note, one third of the sample reported being hit, shoved, picked on, and threatened with harm in the past year. Every participant reported experiencing discrimination at some time during his/her life. The reports of discrimination were independent of gender and social class.

Thompson-Sanders (2002) noted that 28% of African Americans (N = 201) indicated they had personally confronted significant racial/ethnic discrimination during adulthood, and 17% reported they had experienced discrimination during both childhood and adulthood. Thirty-eight percent of the participants reported that discrimination had a negative impact on their lives. Other researchers found that the majority of African American adolescents reported feeling harassed, called names, being perceived as unintelligent, or being wrongly disciplined because of their race (Fisher, Wallace, & Fenton, 2000; Rosenbloom & Way, 2004).

Sanders-Thompson (2002) found that racism manifested in many forms and affected the quality of life of many individuals. Racial discrimination involved ridicule, scorn, contempt, and degrading and unfair treatment by others which can elicit anger, rage, and damage to self-esteem. There are many subtle forms of discrimination that can be termed “microaggressions”. These experiences can include being ignored while waiting in line for service, or being followed in stores while shopping. Sanders-Thompson (2002) noted that an individual may have numerous racial discrimination episodes, most which are overlooked or ignored. These discriminatory episodes can contribute to overall stress experiences due to race or ethnic background.
Williams and Mohammed (2009) proposed that racism or discriminatory victimization shaped other important social determinants of health outcomes, including economic resources and the availability and nature of health care; individual acts of bias and interpersonal discrimination that are inflicted on individuals and encroach on their daily lives grow out of racism.

Ethnic Discrimination and Adolescents

Brondolo et al., (2011) defined ethnic discrimination, as “unfair treatment received because of one’s racial or ethnic characteristics” (p. 14). Ethnic discrimination has been associated with a remarkable variety of negative mental and physical health outcomes, as well as negative health behaviors, such as drug abuse and high risk sexual behaviors. In the United States, ethnic diversity increased in all states in the decade between 1990 and 2000 census (Brewer & Suchan, 2001). Until the past 10 years, the research evidence with regard to the effects of school racial composition on achievement could be described as unsettling. While some researchers (Braddock & Eitle, 2003) have reported few if any relationships between racial composition and achievement gains, numerous other researchers have reported compelling evidence that desegregation had a positive effect on minority student outcomes (Southworth & Mickelson, 2007; Thernstrom & Thernstrom, 2003). Youth are navigating school settings with increased levels of ethnic diversity. Because of these ethnically diverse educational settings, students are now subject to certain social challenges, such as peer ethnic discrimination (PED). In adolescence, peer groups are hierarchically organized within school settings and adolescents strive not only to fit in with their peers but to attain a position at the top of the peer hierarchy. PED may take on a particular importance inasmuch as it denotes an
outsider status or even a low peer status for the recipients (Bellmore, Nishina, You, & Ma, 2012). According to Bellmore, Nishina, You, and Ma (2012) peer ethnic discrimination is defined as “experiencing negative treatment by peers because of one’s membership with an ethnic group” (p.98). Negative treatment can include behaviors ranging from verbal harassment (e.g. being subjected to ethnic/racial slurs) to physical harassment. Like other forms of ethnic discrimination, PED is harmful to the psychosocial and academic health of adolescent and young adults. Students from all ethnic backgrounds who experience PED report lower self-esteem and higher levels of depressive symptoms (Brody et al., 2006; Fisher et al., 2000). Students who are targets of PED also do poorly in school, view school as less important and report less academic motivation compared to students who report rarely experiencing discrimination (Chavous et al., 2008; Perreira, Fuligni, & Potochnick, 2010). Rivas-Drake, Hughes, and Way (2009) found that PED experiences in high school predicted lower levels of public regard; an aspect of ethnic identity that reflects the perceptions an individual has of how others view their race. Consequently, PED is particularly worrisome during late adolescence because it involves a collision between two key developmental features of adolescence, feeling excluded at a time when fitting in with peers’ peaks in importance and potentially forming a negative opinion of one’s self at the time when one’s ethnic identity is developing (Bellmore, Nishina, You, & Ma, 2012).

In the United States educational settings, PED is not limited to any particular ethnic group. PED can occur in any school context where students from different ethnic or cultural backgrounds interact or socialize. However, in several multiethnic samples of adolescents, Asian Americans students have reported more instances of PED than have
other students from other ethnic backgrounds (Fisher et al., 2000; Greene, Way, & Pahl, 2006). Asian students may have been at risk for peer discrimination for many reasons including being perceived as foreign and not socially competent, receiving preferential treatment from teachers, or because they attended a school that did not have a climate that was supportive of interracial interactions (Rosenbloom & Way, 2004).

Researchers found that distinct indicators of PED are linked to psychological well-being and educational outcomes (Brody et al., 2006; Chae & Walters, 2009; Fisher et al., 2000; Graham, 2006). Not only is discrimination a normative experience for minority group adolescents, it has also been consistently linked with poorer academic outcomes. In a multi-ethnic sample of adolescents, Green et al., (2006) found that perceived discrimination from peers and adults was associated with lower self-esteem and increased depressive symptoms over a three-year period. Other researchers found that perceptions of racial discrimination were linked to increased depressive symptoms and increased conduct problems over time among rural African American adolescents (Brody et al., 2006). Seaton and Yip (2009) conducted a study with 252 African American adolescents. The students completed measures of racial discrimination, self-esteem, depressive symptoms and life satisfaction. The researchers found that regardless of school and neighborhood diversity, high perceptions of collective/institutional discrimination were linked to lower self-esteem for students in high diversity settings. Further, high levels of collective discrimination were associated with lower life satisfaction for African American adolescents in low diversity educational settings (Seaton & Yip, 2009).
While researchers have found a consistent link between experiences of discrimination and well-being, the role of context was less clear (Seaton & Yip, 2009). Researchers have suggested that context made a difference in how likely one was to experience racial discrimination (Bellmore et al., 2012). Researchers have found that African American college students in segregated settings perceived a higher level of discrimination than those in a desegregated setting (Postmes & Branscombe, 2002). 

Postmes and Branscombe (2002) posited that when African Americans were in the minority in diverse contexts, they were more likely to perceive greater incidents of discrimination. Furthermore, perceptions of discrimination may decrease among African Americans in settings in which they are in the majority (Gee, 2002; Gee et al., 2007).

In particular, educational settings are important contexts for adolescent development (Logan, 2002). Logan (2002) suggested that segregation is a prominent characteristic that results in distinct ecological environments for adolescents of color. Segregation refers to the physical separation of the races by enforced residence in restricted areas. High school education remains highly segregated for African American adolescents. The average African American student attends a school that is 57% African American (Logan, 2002). On the other hand, African American college students in desegregated settings reported fewer incidents of interpersonal racial discrimination (Postmes & Branscombe, 2002). According to theoretical formulations, discrimination comes from various sources, previous empirical research has employed measures of racial discrimination that focus primarily on interpersonal experiences (Fisher et al., 2000).
There was evidence for positive effects of greater school ethnic diversity (i.e. where many ethnic groups are represented and no single group holds the majority) on students’ peer experiences (Bellmore et al., 2012). The researcher found that in ethnically diverse schools, adolescents felt safer and less victimized by peers, reported lower levels of loneliness, social anxiety, and displayed more adaptive attributions than when they were victimized by their peers (Juvonen et al., 2006). Graham (2006) found that greater ethnic diversity in the classroom setting was associated with lower levels of peer victimization and higher levels of self-worth; while more diversity at the school level also predicted lower levels of peer victimization. The researcher suggested that more diverse environments may be associated with more positive outcomes due to the balance of power among ethnic groups.

**Consequences of Perceived Ethnic Discrimination**

Racism or ethnic discrimination has been hypothesized to contribute to the well-documented racial and ethnic disparities in health status (National Heart, Lung, and Blood Institute, 2000; National Institute of Health, 2000). The detrimental effect of racial categorization on the social status of Black Americans has been evident across a range of indicators, such as health status, poverty, and education (Pieterse & Carter, 2007). Social scientists have consistently reported that as a group, Blacks tend to be at the lowest level of social stratification (Marger, 2003) and have continued to experience significant disparities in the areas of health, education, and wealth (Williams & Collins, 2004). In addition, Mauer (2003) reported that Black men experienced more intense discrimination than Black women across several domains, including education, criminal justice, and rental sales.
According to a plethora of social psychological research, negative treatment and experiences can have adverse consequences for mental health (Brondolo et al., 2008; Miller & Kaiser, 2002; Noh & Kaspar, 2003; Pieterse & Carter, 2007; Sellers, Morgan, & Brown, 2001). Consistent with these findings, various researchers have shown that racial and ethnic minorities’ personal experiences with discrimination were significantly associated with poor mental health (Kessler et al., 1999; Landrine & Klonoff, 2004). For example, African Americans’ and Hispanics’ perceived experiences with discrimination were associated with feelings of stress, anger, and depression. Moreover, the more African Americans indicated that they have had experienced racial discrimination, the more likely they were to report lower levels of life satisfaction and happiness (Williams & Chung, 2003). According to additional evidence, self-reported experiences with ethnic discrimination were related to higher psychiatric symptoms of intrusion and avoidance and were related to symptoms of depression, anxiety, obsession, compulsion, and somatization among African Americans. Researchers, Landrine and Klonoff (2004) have provided ample evidence that experiences of perceived discrimination can have devastating mental health consequences.

Just as there are individual differences that can influence perceived racial discrimination and emotional responses, there are individual differences that can influence the consequences of perceived racial discrimination. For example, according to Sellers & Shelton (2003), some African Americans may be negatively affected by perceived discrimination, whereas others from other ethnic backgrounds may be buffered from these consequences because of their beliefs regarding the significance and meaning of race or ethnicity. The researchers hypothesize that “racial centrality, racial ideology,
and racial regard will moderate the mental health consequences of perceived discrimination” (p. 1081). Researchers have assumed that a strong racial or cultural identification or connection with one’s group can serve as a psychological buffer or help to compensate against perceived prejudice and discrimination (Shelton & Sellers, 2000).

The blatant and subtle behavior of racism is a significant psychosocial stressor that is hypothesized to have negative psychological and physical health consequences (Brondolo et al., 2008; Clark, Anderson, Clark, & Williams, 1999; Landrine & Klonoff, 2004; Major et al., 2002; Sellers et al., 2001). Some researchers have suggested that studies of the health effects of racism may benefit by conceptualizing racism and ethnic discrimination as forms of social stress within the stress and coping framework developed by Lazarus and Folkman (2004). According to this model, the psychological and physiological effects of a particular stressor depend not only on the characteristics of actual experiences or events, but also on the individual’s perceptions of the threat posed by the stressor and on ensuing responses. According to Pieterse and Carter (2007) the notion that racism represents a unique source of life stress has only received meager attention in the empirical literature. The work of Sander-Thompson (2002) was reflective of some of the few studies that attempted to test this hypothesis directly. Using the Daily Stress Inventory and the Experience of Discrimination Questionnaire, Sanders-Thompson (2002) surveyed 156 individuals from different racial backgrounds. The sample included 70 African Americans, 58 White Americans, 18 Asian Americans, and 6 Hispanic Americans. Sanders-Thompson compared scores on the stress inventory and found a significant effect for ethnicity. Asian Americans reported the highest amount of daily stress, whereas African Americans reported the highest rate of experiences with
discrimination. There were several limitations with Sander-Thompson’s 2002 study. It should be noted that the sample was composed largely of females, and very few Asian Americans and Hispanic Americans to have generalized these findings. Therefore, the study may lack sufficient power to detect meaningful gender or ethnicity effects for groups other than African Americans.

Taylor and Turner’s (2002) investigation of the relationship between perceptions of discrimination and depression in a sample of 5,924 high school students found that Black students reported higher levels of stress and more frequent exposure to discrimination. However, when the researchers controlled for social stress, exposure to discrimination did not predict any symptoms of depression. They concluded that in some circumstances, general life stress might play a greater role in psychological distress than discrimination or racism-related stress.

During 1983, 2006, and 2009, Cohen and Janicki-Deverts (2012) conducted three national surveys assessing psychological stress. According to the results in all three surveys stress was higher among women than men, and increased with decreasing age, level of education, and income. Although minorities generally reported more stress than whites, these differences lost significance when adjusted for other demographics. Stress increased little in response to the 2008-2009 economic downturn, except among middle-aged, college-educated white men with full-time employment (Cohen & Janicki-Deverts, 2012). The researchers found that there was a greater level of stress-related health risks among women, among younger adults, those of lower SES, and men potentially subject to substantial losses of income and wealth.
The interconnection between perceptions of racism and other contextual factors, such as socioeconomic position, gender, and religion has also been noted in the literature (Pieterse & Carter, 2007). In a study of African Americans’ perceptions of discrimination, Gary (1995) found that African American men who were young, unmarried, had a college-level education, and/or were employed were more likely to perceive racial discrimination than their counterparts who did not share these demographic characteristics. With regard to gender, researchers have suggested that Black men have a higher incidence of racial discrimination than Black women (Sellers & Shelton, 2003). The mechanisms linking perceived racism to health outcomes are still unclear. Gallo and Mathews (2003) suggested that chronic social stressors, including racism, promote intense and frequent exposure to harmful or potentially threatening events. The researchers suggested that the higher levels of stress exposure plus diminished coping resources culminates in chronically higher levels of negative affect, increasing the risk for cardiovascular and other disease through a variety of pathophysiological mechanisms.

The effects of perceived racism on negative affect may be multidimensional, influencing both trait negative affect and state negative affect. According to Brondolo et al. (2008), trait negative affect referred to a broad and stable affective disposition that made an individual likely to experience negative emotions, whereas state affect referred to momentary experiences of emotion that may fluctuate as a result of daily events, situational characteristics, and other factors. The available evidence consistently supported the relationship between lifetime perceived racism and a variety of manifestations of negative affect, which can include: negative interpersonal interactions,
which may evoke negative emotions including anger, sadness, and nervousness (Bennett, Merritt, Edwards, & Sollers, 2002; Broudy et al., 2007; Cassidy, O’Connor, Howe, & Warden, 2004; Karlsen & Nazroo, 2002; Landrine & Klonoff, 2004; Noh & Kaspar, 2003). Researchers in the United States found that for African Americans, racism was positively associated with symptoms of depression and anxiety, as well as dispositional hostility (Landrine & Klonoff, 2004). Additional studies have been focused on emotional responses (e.g. anger) and researchers have found a positive association of racism to both situation-specific and daily negative affect among minority group individuals (Bennett et al., 2004; Broudy et al., 2007).

The Consequences of Discrimination and Segregation on Student Academic Achievement

Race, social class, and gender stratification were three of the most enduring sources of social inequality and discrimination in American society (Southworth & Mickelson, 2007; Thernstrom & Thernstrom, 2003). Because social class and ethnicity were highly correlated, social class, or socioeconomic position in education was closely related to racial inequality in access to opportunities to learn. Segregating students based on race, ethnicity, or social class was a form of discrimination (Armor, 2006; Braddock & Eitle, 2003; Thernstrom & Thernstrom, 2003). The underlying mechanisms by which school racial composition and discriminatory experiences affected educational opportunities were complex. According to Thernstrom and Thernstrom, (2003) segregation and discrimination due to race or ethnic background have had an historic role in educational stratification. Students who attend racially diverse or White schools are more likely to be taught by qualified teachers, to experience a rigorous academic climate, to have peers who expect to attend college, and to have adequate access to materials and
resources than students in segregated minority schools. Conversely, students who attend segregated minority schools are likely to have fewer qualified teachers, weaker academic climates, more poor non-English speaking and homeless peers, fewer gifted classmates, and fewer options to enroll in college preparatory courses than peers at racially balanced schools (Braddock & Eitle, 2003; Pachon & Federman, 2003).

Compelling evidence of the benefits of desegregation schooling and the harms of both first and second generation segregation were found through recent research. For example, Armor (2006) analyzed 2003 National Assessment of Educational Progress data and reported that in many states black students’ achievement was negatively affected by school segregation, even after controlling for students’ poverty. Hanushek and colleagues (2006) found segregation was harmful to black students. Likewise, Borman et al. (2005) found that school segregation was negatively associated with the percentage of students at a school who passed mathematics and reading portions of the Florida Comprehensive Assessment Test (FCAT). Satcioglu (2006), analyzed 20 years of student, school, and community level data from the city of Cleveland. He found that desegregated schools were far more efficient in overcoming students’ social, cultural, and SEP deficits than were segregated schools. In addition, the researcher found that school racial and social class composition had much stronger influences on educational outcomes than students’ family background. Harris’s (2006) analysis of No Child Left Behind (NCLB) data from 22,000 schools and 18,000,000 students demonstrated that racially segregated schools offered fewer opportunities to learn compared to racially diverse schools. Racially imbalanced minority schools were more often than not, schools with high concentrations of low-income, minority students. According to the evidence, students in predominantly
minority schools had access to fewer Advanced Placement classes than students in majority white schools (Pachon & Federman, 2005). Students who attended racially imbalanced schools, who tended to be African American, Latino, and Native American, were more likely to have fewer material and teacher resources, a weaker academic climate, and greater concentrations of poor, homeless, limited English-speaking, and immigrant students than students in racially balanced schools (Van Hook, 2002).

**Health Disparities Among Racial and Ethnic Populations**

The United States has become increasingly diverse in the last century. According to the 2010 U.S. Census, approximately 36 percent of the population belongs to a racial or ethnic minority group, such as: American Indian or Alaska Native, Asian American, Black or African American, Hispanic or Latino, and Native Hawaiian or Other Pacific Islander. Many researchers (Gee, 2002; Kelaher et al., 2008; Pascoe & Richman, 2009; Pieterse & Carter, 2007) have examined disparities in health among U.S. racial and ethnic populations. The United States has a long history of collecting and reporting health statistics by race. Mortality statistics are among the most readily available indicators of health status for multiple racial groups (Williams, 2005). Though health indicators such as life expectancy and infant mortality have improved for most Americans, some minorities experience a disproportionate burden of preventable disease, death, and disability compared with non-minorities. For example, researchers have revealed that the gap regarding infant mortality rate, life expectancy, and rates of sexually transmitted infections have widened between blacks and whites in recent decades (Krieger, 2000). Williams (2005) revealed that Blacks have an overall death rate that is 30% higher than that of Whites. All other racial groups had death rates that were lower than that of
Whites, with the Asian and Pacific Islander (API) population manifesting the lowest overall dearth rate.

After reviewing national data, Singh & Miller (2004) found that immigrants of all of the major racial groups in the United States had lower rates of adult and infant mortality than their native-born counterparts. However, with length of stay in the United States and acculturation to American society, the health advantage of immigrants tended to decline over time. For example, researchers revealed that within the Latino population, infant and adult mortality, psychiatric disorders, psychological distress, substance abuse, low birth weight, poor health practices, and other indicators of morbidity all increased with increasing acculturation (Finch, Hummer, Reindl, & Vega, 2002). According to the 1992 to 1995 data compiled from the National Health Interview Survey, there was a consistent trend of chronic disease across multiple populations in which recent immigrants reported better health than long term immigrants. This pattern existed for non-Hispanic Whites and Blacks, Chinese, Japanese, Filipinos, Asian-Indians, Koreans, Vietnamese, other APIs, Mexicans, Cubans, and Central and South Americans (Singh & Miller, 2004).

According to recent epidemiological data, the general American Indian/Alaska Native population was at disproportionately greater risk for poorer general health, physical pain, impairment, HIV infection, and substance abuse (Evans-Campbell & Walters, 2004; National Center for Health Statistics, 2006; Rhoades, 2003; Walters, Simoni, & Evans-Campbell, 2002). According to the 2004 National Center for Health Statistics, out of the total racial/ethnic groups surveyed, 16% of American Indians/Alaska Natives had the highest prevalence of respondent rated fair/poor health,
Moreover, American Indians/Alaska Natives had the highest prevalence of past month severe headaches or migraines (19.1%), low back pain (35.3%), neck pain (18.8%), and joint pain (39.6%). In addition, 17.1% of the American Indians/Alaska Natives population was most likely to experience limitations in daily activities caused by chronic conditions than were other racial/ethnic groups (Simoni et al, 2006).

The Centers for Disease Control and Prevention (CDC), 2011 Health Disparities and Inequalities Report was the first in a series of periodic, consolidated assessments that highlighted health disparities by sex, race, ethnicity, income, education, disability status and other social characteristics in the United States. The report was a review of the recent trends and ongoing variations in health disparities and inequalities in selected social and health indicators. The data highlighted the considerable and persistent gaps between the healthiest people and the least healthy. For example, researchers identified key findings in health insurance coverage disparities, suggesting that insurance coverage was strongly related to better health outcomes. Hispanics and non-Hispanic blacks had substantially higher uninsured rates, compared with Asian/Pacific Islanders and non-Hispanic whites (CDC, 2011). According to key findings analyzed by race, black women and men had the highest prevalence of coronary heart disease (CHD) death rates and stroke disparities in the 45–74 age groups than women and men of other races. There was a higher percentage of black women (37.9%) than white women (19.4%) died before age 75 as a result of CHD, as did black men (61.5%) compared with white men (41.5%). The same black-white difference was seen among women and men who died of stroke: a higher percentage of black women (39%) died of stroke before age 75 compared with white
women (17.3%) as did black men (60.7%) compared to white men (31.1%) (CDC, 2011). Additional findings with regard to the Human Immunodeficiency Virus (HIV) infection, racial/ethnic minorities, except Asians, continued to experience a disproportionate burden of HIV diagnoses, as do men who have had sex with men. Disparities continued to widen among African-American and American Indian/Alaska Native males compared with white males. Lastly, older adults, non-Hispanic blacks, U.S., born adults, and adults with lower family income, lower education, public health insurance, diabetes, obesity, or a disability had a higher prevalence of hypertension than their counterparts. Men, adults aged 18–44 years, Mexican Americans, foreign-born adults, non-obese adults, and adults without health insurance, diabetes, or a disability had a lower prevalence of hypertension control than their counterparts (CDC, 2011).

Historically, racial categories have reflected oppression, exploitation, and inequality. Accordingly, race has been an important marker of differential access to societal resources and rewards and health status is no exception (Williams, 2005). In the United States, research has been focused on racial differences in underlying biological characteristics as crucial for creating racial differences in rates of disease and death. In spite of a variety of methodological limitations, the overall pattern of persisting racial/ethnic differences in health still remain (Krieger, 2000). One of the most established and frequently reported patterns in the distribution of health status in the United States was that African Americans have higher rates of death, disease, and disability than whites have. This pattern has been documented for more than 150 years (Krieger, 2000; Williams et al., 1997). Although the findings are not uniform, studies of mental health status generally find that compared to whites, blacks had higher levels of
psychological distress and lower levels of subjective well-being (Krieger, 2000). Given
the strong relationship between race and systems of inequality, social and behavioral
scientists have emphasized that differences between the races and socioeconomic
circumstances were centrally responsible for racial variations in health outcomes.
According to Williams (2005) there are large racial differences in SEP. For example,
compared to whites, African Americans had a median income that was 63% less, were
more than twice as likely to be unemployed, three times as likely to be poor and twice as
likely not to have graduated from college. Accordingly, studies of racial differences in
health routinely control for SEP and it is generally found that after adjusting for SEP,
racial health disparities were substantially reduced or sometimes eliminated (Krieger,
2000).

The Relationship Between Perceived Discrimination and Self-Reported Health

Many researchers (Chae & Walters, 2009; Mays, Cochran, & Barnes, 2007;
Paradies, 2006; Williams et al., 2003) have documented the relationship between
perceived discrimination and illness in minority groups. Chronic experiences of
discrimination, whether based on race, gender, sexuality, or other characteristics have
been shown to have negative implications for health, including mental health and health
behaviors (Finch, Hummer, Reindl, & Vega, 2002; Schmitt, Branscombe, & Postmes,
2003; Williams et al., 2003). Today, there is still limited understanding of discrimination
faced by groups other than African Americans (Gee, 2002; Williams 2005). There is a
growing scientific interest in examining the extent to which perceptions of discrimination
are a type of stressful life experience that can adversely affect overall health (Gee, 2002;
Gee & Walsemann, 2009; Kelaher et al., 2008; Williams et al., 2003). The stress created
by experiences or episodes of racial bias are one form of discrimination, which is an example how racism in the larger society can affect one’s health (Williams et al., 2003). According to the research conducted with non-White groups, discrimination may have negative implications for physical health via stress mediated pathways (Chae & Walters, 2009).

Researchers have found with studies of Asian, Black, and Latino sexual minorities that discrimination may be associated with higher levels of depression and HIV risk behavior (Diaz et al., 2001; Mays, & Cochran, 2001; Meyer, 2003). In a recent national study of Asian Americans, researchers have found that more self-reported experiences of discrimination were associated with higher odds of cardiovascular and respiratory health problems, as well chronic pain (Gee, Spencer, Chen, & Takeuchi, 2007). In another study, Krieger and Sidney (1997) found that for sexual minority Blacks, experiences of discrimination may have negative consequences for cardiovascular health (Krieger & Sidney, 1997).

Many details of the negative relationship between perceived racial/ethnic discrimination and health are still poorly understood (Mays & Cochran, 2001; Williams, 2005). Brondolo et al., (2011) studied the racial/ethnic differences in the relationship between perceived discrimination and self-reported health. The purpose of the study was twofold: 1) to identify the dimensions of discrimination that drive the relationship between perceived discrimination and self-reported health and 2) to explore the psychological mediators that can affect one’s health. Brondolo (2011) and her colleagues studied a sample of 743 Asian, Black, and Latino(a) adults, completing measures of perceived racial/ethnic discrimination, self-reported health, depression, anxiety, and
cynical hostility. The researchers suggested that the association between perceived discrimination and poor self-reported health were significant and did not differ across racial/ethnic subgroups. Race-related social exclusion and threat/harassment uniquely contributed to poor health for all groups. Depression, anxiety, and cynical hostility fully mediated the effect of social exclusion on health, but did not fully explain the effect of threat or harassment. The researchers’ final conclusion was that detrimental effects of race-related exclusion and threat transcend between-group differences in discriminatory experiences. The effects of race-related exclusion and threat on health, however, may operate through different mechanisms.

The Relationship Between Perceived Discrimination and Mental Health

According to Gee and Walsemann (2009), the accrual of perceived discrimination experiences over the life course may diminish well-being. According to Williams et al. (2003) discrimination was associated “with poor health status and the association is strongest in the case of mental health” (p. 201). In a 1999 review of the literature with regard to discrimination and health, Williams et al. (2003) identified fifteen studies of racial/ethnic discrimination; in a 2000 review of the literature restricted to just mental health, the researchers identified thirteen additional studies. Williams et al. (2003) limited their search to empirical studies that examined the association between perceptions of racial/ethnic discrimination and a particular indicator of health. According to the results, a positive association indicated that higher levels of discrimination were associated with higher levels of illness/health risk in a multivariate model that included adjustment for demographic and socioeconomic factors. A negative association indicated that higher levels of discrimination were associated with lower levels of illness/health risk.
A conditional association indicated the presence of a positive association but only under certain conditions. No association indicated that discrimination was unrelated to health status.

In a comprehensive mental health review of the literature Williams et al. (2003) found that mental health was the most common outcome examined. Of the 53 studies reviewed, 32 included at least one measure of mental health. Scales of non-specific distress were the most common health indicators used in the reviews. Of the 25 associations examined for psychological distress, the researchers found that 20 studies indicated a positive association between discrimination and distress (Brown et al., 2000; Schultz, Williams, Israel, et al., 2000; Williams et al., 1997), 3 reported a conditional association (Utsey & Payne, 2000), and 2 reported no association (Diaz, Ayala, Bein, Henne, & Marin, 2001). Other researchers focused on mental health, examining generalized anxiety disorder (Kessler et al., 1999), early initiation of substance abuse (Whitbeck et al., 2001), psychosis (Karlsen & Nazroo, 2002), and anger (Guyll, Matthews, & Bromberger, 2001). All researchers reported a positive association with discrimination. None of the mental health studies reviewed indicated a negative association (Williams et al., 2003).

Specifically in adult populations, according to theoretical and empirical reports, psychological well-being was influenced by such ethnically relevant factors as racism (Clark et al, 1999; Harrell, 2003; Noh & Kaspar, 2003; & Williams et al., 1997). Researchers (Guthrie, Young, Williams, Boyd, & Kinter, 2002) found that that perceived racism was stressful and was related to psychological symptoms in youth (Nyborg & Curry, 2003); the samples in the overwhelming majority of studies have been limited to
adults. According to the evidence, the major reasons that Black adults sought psychotherapy were due to perceived racism and stressful life experiences (Clark, Coleman, & Novak, 2004; National Institute of Health, 2000). However, research exploring relationships among perceived racism and psychological well-being in children, adolescents, and emerging adults is still warranted.

Cohen et al. (2000) stated that discrimination, as a source of psychosocial stress, may have more immediate effects on physiology through biological pathways including its influence on autoimmune systems, cellular aging, and gene expression. Additionally, dimensions of racial group identity may be protective and may buffer the influence of discrimination on health. According to Chae and Walters (2009), greater racial group identification and racial centrality, the degree to which race is salient to self-identification, moderated the effect of discrimination on mental health among Black and Mexican American individuals. In 2003, researchers Sellers and Shelton found in a study of Asian gay men, that endorsing positive evaluations of their own group protected against depression and moderated the influences of perceived devaluation by others on HIV risk behavior.

According to Brondolo et al. (2011), the psychological mechanisms through which perceived discrimination influenced self-reported health were not fully understood. There was substantial evidence that perceived discrimination was related to symptoms of depression and anxiety (Mays, Cochran, & Barnes, 2007; Finch, Hummer, Kolody, & Vega, 2001; Schulz, Gravlee, & Williams, 2006) both of which have negative implications for physical and mental health (McGrady et al., 2009). The relationship between perceived discrimination and overall health is sometimes reduced or eliminated
after controlling for measures of psychological distress. Therefore, it is possible that
greater perceived discrimination leads to decrements in self-reported physical and mental
health by increasing depression, anxiety, and the psychophysiological changes that
accompany such psychological distress (McGrady et al., 2009). It is also possible that the
stressors associated with discrimination or other adverse social conditions may exert
effects on health through the development of underlying schemas about the world and the
self (Brondolo, Brady, Thompson, et al., 2008). For example, researchers have found that
exposure to discrimination may foster the tendency to interpret the behaviors of others as
intentionally harmful, deceitful, and/or selfish (i.e., hostile attributions) and reinforce the
belief that one’s efforts to change one’s circumstances are likely to be ineffective
(McGrady et al., 2009). Cynicism and hostility have been independently associated with
health status, particularly with indices of cardiovascular disease (Smith & Ruiz, 2002).
Prior studies of perceived discrimination have typically treated personality traits such as
cynicism or hostility as confounding variables rather than as potential mediators.
However, the researchers (Brondolo et al., 2011) revealed that given that adult levels of
cynicism and hostility are at least partly shaped by childhood environmental
circumstances, experiences of discrimination over one’s life could also cultivate these
personality traits, which are then associated with poor health.

In a meta-analytic review of perceived discrimination and mental health, Pascoe
and Richman (2009) found that 110 studies presented sufficient data on the zero-order
relationship between perceived discrimination and mental health. Some of the mental
health outcomes included: scales for mental health (e.g. depressive symptoms, anxiety
symptoms, indicators of psychosis or paranoia, and posttraumatic stress symptoms),
psychological distress, and indicators of general well-being (e.g. self-esteem, positive self-perceptions, life satisfaction, perceived stress, anger, happiness, and general mental health). Altogether these 110 studies produced 497 relationships between perceived discrimination and poorer mental health status. In addition, this relationship did not seem to be specific to certain types of mental health outcomes but instead appeared to be equally strong across many types of mental health (Pascoe & Richman, 2009). In their meta-analysis, the researchers also attempted to address whether perceived discrimination was related not just to mental illness, distress, or general measures of well-being but also to actual diagnoses of mental illness. Because only two out of seven studies that measured actual diagnosis presented sufficient data for meta-analyses, the researchers could not examine the relationship between perceived discrimination and actual diagnosis of mental illness quantitatively (Brown et al., 2000; Gee et al., 2007; Karlsen & Nazroo, 2002; Kessler et al., 1999; Mays & Cochran, 2001). Lastly, according to the empirical data compiled by Pascoe and Richman (2009), perceived discrimination was related to an increased probability of manifesting clinical levels of mental illness and higher levels of perceived discrimination were related to poorer levels of mental health among all ethnicities and both genders.

**The Racism-Related Stress Model.** According to Pieterse and Carter (2007), among Black adults in the United States, a sizable number have encountered stressful life conditions, including consistent exposure to various forms of racism. Although findings drawn from the stressful life event literature has pointed to a positive relationship between stressful life experiences and psychological distress (Kessler et al., 1997), only recently have researchers started to view race-related events or non-dominant social
status as a type of life stressor. Understanding the manner in which racism-related life experiences has impacted psychological health has been greatly enhanced by the development of two models of race-related stress (Clark et al., 1999; Harrell, 2000). Both race-related stress models were grounded in the interactional model of stress initially formulated by Lazarus and Folkman (2004). Harrell (2000) proposed a model of racism-related stress in which she identified six types of race-related stressors: 1) racism-related life events, 2) vicarious racism experiences, 3) daily racism microstressors, 4) chronic-contextual stress, 5) collective experience of racism, and 6) transgenerational transmission of group traumas. Harrell’s conceptualization drew directly from the stress as interaction model by placing emphasis on both the environment (racism-related incidents) and the individual (cultural worldview and racial identity). The researcher stated that racism-related stress is the race–related transactions between individuals and their environment that emerge from the dynamics of racism; it is these dynamics that are perceived to tax or exceed existing individual and collective resources or threaten well-being.

Clark et al. (1999) offered another model of racism-related stress that focused on the role environmental stimuli play in relation to both personal prejudice and aspects of institutional racism. According to Clark et al., the experiences of racism are understood to have a negative effect on one’s access to resources, opportunity for improvement of social status, and psychological well-being. A central construct of the researcher’s model focused on how an individual perceived the environmental stimuli, a process reflective of the appraisal aspect of the Lazarus and Folkman model. Clark (1999) and colleagues theorized that if an individual perceived an environment stimulus as racism, he or she
would use various coping responses. The coping responses, in turn, influenced the extent of the physical and/or psychological harm associated with the outcome of the stimulus. Although the stress process was associated with contextual factors such as SEP and psychological character, ultimately the environmental stressor had the potential to adversely impact a range of health-related outcomes. Both Harrell’s (2000) and Clark’s et al. (1999) models have provided important frameworks within which to understand those empirical findings that have outlined a positive association between experiences of discrimination and psychological distress (Cohen, S., & Janicki-Deverts, 2012; Pieterse & Carter, 2007).

The Relationship Between Perceived Discrimination and Physical Health

Sanders-Thompson (2002) noted individual reactions to discriminatory experiences or situations are many. With regard to perceived discrimination, physiological reactions included: changes in eating patterns, sleep, blood pressure, and increased use of alcohol and other substances. Harrell, Hall, and Taliaferro (2003) reviewed several studies that focused on the impact of various forms of discrimination (i.e. racism) on physiological activity. The reports chosen by the researchers included studies where the investigators directly measured physiological responses. The majority of the studies were laboratory experiments focusing on the consequences of racism. The laboratory studies exposed the individuals to analogues of racist events, whereas the survey studies focused on racism as perceived by the participant. According to Harrell et al. (2003), although the approaches differed, both sets of studies provided ample evidence that was crucial to the understanding of the relationship between health and racial oppression. For example, in self-reported correlational studies, the participants disclosed
their perception of the number and kinds of experiences they have had with racism or racial discrimination. Such studies seek to determine whether these reports correlate with changes in physiological arousal. The researchers hypothesized that personality and coping skills could help to moderate the relationship between discrimination and physiological variables (i.e. blood pressure, increased heart rate and respiration).

Krieger and Sidney (1997) noted that in studying a sample of 4,092 African American and White men and women, there were associations related to discrimination, increased blood pressure, and complex interactions with coping styles. The researchers reported that a passive posture, denial of discriminatory treatment, or not reporting episodes of unfair treatment, were associated with higher blood pressure readings. On the other hand, participants who reported discrimination experiences and challenged unfair treatment had lower blood pressure readings. In an earlier study, exploring the impact of several types of work related stress in a black sample; James et al. (1984) found that active coping styles, work-related stress, and racism were related to elevated blood pressure among 112 African American men. According to the findings, some men viewed race as an impediment to success and other viewed race as helpful in their careers.

Studies (Harrell, 2000; Semmes, 1992) of cultural orientation and physiological activity have produced consistent results. This research is important because a central facet of racism was disruptive of the cultural fabric within a group of oppressed individuals. Dressler and Bindon (2000) found that the cultural aspect of racism could be measured in terms of the manner in which the values of individuals have been influenced. The researchers posited that individuals who reported materialistic aspirations beyond their means or promoted cultural values that differed from community consensus, tended
to have elevated blood pressure levels. Daniels et al. (2001) measured tendencies to embrace the mainstream American cultural values of materialism, individualism, and competition. The researchers found that blood pressure was higher among African American men with stronger mainstream orientations.

After examining two studies (Williams & Neighbors 2001; Brondolo et al., 2001), Williams et al. (2003) reported a positive relationship between perceptions of discrimination and elevated prevalence of hypertension among African Americans. In another study, Troxel et al. (2001) found a positive relationship between chronic everyday discrimination and the development of atherosclerotic disease in the carotid artery among Black women but not among White women. After examining a national sample, LaVeist, Sellers, and Neighbors (2001) conveyed that discrimination was related to elevated mortality risks over a 13-year follow-up period among African Americans who had self-blaming as opposed to external attributional orientations. After reviewing additional literature, (Landrine & Klonoff, 2004; Guthrie et al., 2002) posited that health behaviors may be the pathway through which perceptions of discrimination can affect health. According to the researchers, there was a positive association between discrimination and cigarette smoking and similar associations with alcohol use. Investigators (Williams et al., 1997; Ren, Amick, & Williams, 1999) examined the contributions of discrimination to explaining racial disparities in health. They found that after consideration of socioeconomic status, perceptions of discrimination made an incremental contribution in accounting for Black-White differences in self-reported physical health.
In a meta-analytic examination of the literature, researchers Pascoe and Richman (2009) found 36 studies that provided sufficient data indicating a relationship between perceived discrimination and physical health. A wide variety of physical health outcomes were assessed in their studies. Some of these health outcomes included: risk-factors related to cardiovascular disease (e.g. blood pressure, plaque, and hear rate variability), physical outcomes (e.g. pelvic inflammatory disease, diabetes, and yeast infections), respiratory conditions, other general indicators of illness (e.g. nausea, pain, and headaches) and general health questionnaires. These 36 studies provided 303 individual relationships between perceived discrimination and physical health.

Cardiovascular disease (CVD) remains the leading cause of death among adults and affects over 70 million people in the United States (Lloyd-Jones et al., 2009). Despite the marked declines in overall prevalence of CVD, racial and ethnic disparities in CVD prevalence exist (Konety et al., 2005; Lloyd-Jones et al., 2009). Racial and other forms of discrimination have gained attention as an independent factor for CVD. According to Cardarelli et al. (2010), discrimination was defined as a source of acute and lifelong chronic stress and may contribute to CVD; discrimination negatively impacts mental health, inducing unhealthy behaviors, or more directly, by inducing inflammation and platelet aggregation, which is an underlying pathophysiologic mechanism of atherosclerosis. Lewis et al. (2006) studied 181 African American middle aged women and found that higher levels of coronary artery calcification were associated with chronic exposure to discrimination. The investigator reported that for every unit increase in experiencing discrimination, there were 2.8 fold increases in the odds of having coronary calcification.
Researchers may have wondered whether perceptions of discrimination may have a more negative impact on mental or physical health. One can only begin to speculate on the answer to this question. By examining differences in the zero-order relationship with perceived discrimination both between and within studies for these two types of health outcomes, one may find the answer to this question. In order to examine the differential relationship of perceived discrimination on mental and physical health outcomes, Pascoe and Richman (2009) compared physical and mental health both between and within studies. The investigators found that the effect of perceived discrimination was not significantly different for mental and physical health between studies under a random-effects model. However, the point estimate trended more negative for mental health \( (r = -.20, 95\% \text{ CI} = -.24, -.16) \) when compared with physical health \( (r = -.15, 95\% \text{ CI} = -.22, -.07) \). When mental and physical health outcomes were examined within studies, no significant differences were found in the relationship between perceived discrimination and mental / physical health under a random-effects model, where a positive correlation represented a stronger effect for mental health compared with physical health.

**Acute and Chronic Discrimination**

According to Williams et al. (2003) the literature on assessment of stress has offered a variety of important lessons for the study of discriminatory experiences. As is the case with other stressful experiences, discrimination is a multidimensional dilemma and its assessment should provide comprehensive coverage of all relevant domains. Williams et al. (2003) stated that the most commonly assessed types of stressful experiences were life events, chronic stress, and daily hassle; they all have existing analogues among existing measures of discrimination. Life events are discrete,
observable stressors. Chronic stressors were defined as ongoing problems that were often role related. Daily hassles can refer to chronic or episodic irritations that are minor. Major acute experiences of racial bias are the most commonly assessed types of discriminatory experiences. In the general literature, the researchers have found that chronic stressors (e.g. discriminatory episodes) were stronger predictors of onset and course of illness that were acute life events. Conceptually, persistent and repeated experiences of discrimination were especially relevant in identifying the contribution of discrimination to health conditions in which onset and progression were characterized by long periods of time. According to Williams et al. (2003), assessment of chronic discrimination had focused on the domains of work and education. The researchers expressed a concern that there was a need to focus on the cause of chronic stressors in other domains (e.g. family settings) other than interpersonal conflicts and tensions associated within the workplace or educational setting. Lastly, the researchers stressed that measures of chronic exposure to discrimination needed to be devoted to assessing duration and frequency of exposure to discrimination directly.

Gee and Walsemann (2009) defined chronic stressors as “discrete events and conditions, or constellations of related events and conditions that persist over time” (p. 1677). They contended that chronic stressors may have direct effects on the body through the accumulation of ‘wear and tear’ on the organ systems through repeated encounters with stressors. In addition to their effects on somatic systems, chronic stressors may also lead to fatigue, shortened attention span, and injuries. According to Borrell et al. (2007) mundane racial incidents, repeated on a day to day basis, may become chronic stressors, or racialized microaggressions. In this way, discrimination may
be related to a variety of health problems, including hypertension and distress. Moreover Borrell et al. (2007) stated that discrimination’s relationship to sleep problems and substance use may contribute to unintentional injuries and other health problems. Consistent with these findings, Williams et al. (1997) found that chronic and routine experiences of ‘everyday discrimination’ were associated with diminished well-being, increased bed days and increased psychological distress among African Americans and Whites. In contrast, the researchers noted that measures of racial discrimination based on acute experiences of discrimination were not associated with these outcomes. Similarly, Gee et al. (2006) found everyday discrimination was associated with cardiovascular conditions, whereas past year measures of more acute discrimination were not. According to Gee and Walsemann (2009) this suggested that repeated instances of discrimination, such as when discrimination blocks someone from securing employment on multiple occasions, may be more health damaging than single instances of discrimination.

Summary

Clearly research on perceived discrimination and health is still in its infancy. However, the available evidence strongly suggests that perceived discrimination experiences are an important, though understudied social-related stressor, that may adversely affect one’s overall health and well-being (Cardarelli et al., 2010; Sanders-Thompson, 2002; Williams et al., 2003). Several longitudinal studies have supported the theorized causal direction that racial discrimination predicts illness (Barnes et al., 2008; Schultz et al., 2006; Taylor et al., 2004). Further some of these studies have indicated that chronic exposure to discrimination can adversely affect health (Fisher et al., 2000; Lewis et al., 2006). Self-reported discrimination represents an all-encompassing type of social
stressor or ‘stressful life experience’, which can ultimately affect one’s overall health.

There is much that can be learned from sustained research in this area, especially in the area of assessment or measurement of the frequency and duration of chronic discriminatory experiences. Additional examination is needed to help identify the specific indicators of discrimination that are associated with overall mental and physical health outcomes.
CHAPTER III
RESEARCH METHODS

Sample Design

The question this study is intended to examine is: What is the association between perceived discrimination and self-reported health among undergraduate students in a Southwest Florida four year university? In this chapter the researcher will describe the research methods that were used to answer that question. The sample design for this study was a stratified random cluster sample, specified by each of the 5 colleges, academic course levels and class. Approximately 700 university participants were selected from the 12,069 fall 2012 undergraduate student enrollment. Approximately 88% of the total university enrollment is undergraduate students, with 79% of them attending full time. The majority of the student population (6,540) attending the university is between the ages of 20-24 years old. Seventy-nine percent of the undergraduate students are 24 years old or younger. University students 20 years of age and under, have the fastest rate of enrollment growth. The university students attended classes on a suburban Southwest Florida university campus that is predominately (71.8%), white, 15.7% Hispanic, 6.8% African American, 2.4% Asian, 1.5% Non-resident alien, 0.8% Native American, and 1.3 % not reported. African American student enrollment has increased from 719 in fall 2011 to 865 in fall 2012, showing the fastest growth among racial/ethnic groups. Hispanic students are 16% of the total population, increasing 11% from fall 2010. Over 9,705 (77%) of the students attending the university, receive some form of financial aid including: loans, grants, or scholarship (BOT Information System, 2012).
Sample Size Calculations

Using GPower 3.1.3 (Faul, Erdfelder, Lang, & Buchner, 2009) the sample effect size was determined to be 106 surveys/participants needed for the study. GPower3.1.3 is a flexible statistical power analysis program for the social, behavioral, and biomedical sciences. Assuming that the student response rate would be low, knowing that students were enrolled in multiple university classes (university registration list), and assuming that some students would decline to participate, the researcher over sampled, distributing at least 700 surveys to reach the desired outcome of a minimum of 106 respondents.

Selection of Participants

The researcher received the fall 2012 main campus undergraduate course offering schedule from the university registrars’ office at the beginning of the fall semester. The 1,237 undergraduate courses offered in fall 2012, were contained in a Microsoft Excel spreadsheet categorized by the 5 colleges (College of Education, College of Business, College of Arts and Sciences, College of Health Professions and Social Work, and the College of Engineering) and by academic level (1,000, 2,000, 3,000, and 4,000). The 2012 fall semester virtual, graduate, and off campus courses were filtered out from the data by the university’s registrars’ office. The stratification variables consisted of data organized by college, academic level, and class. A summary of the total number of classes offered and total number of students enrolled at each academic level within each college was generated and selection weighted accordingly. For example, if a total enrollment count of 26,500 was determined and 21% of those students are enrolled in 2000 academic level classes; then 80.2% were enrolled in the College of Arts & Sciences,
4.5% in the College of Business, 10.3% in the College of Health Professions and Social Work, 1.1% in the College of Education and 3.9% in the College of Engineering.

**Sample Composition**

Using approximately 700 students/surveys as the sample size based on total enrollment summary by college, academic level, and class, allowed for appropriate proportional representation from within the 5 colleges. If 700 surveys were needed, to represent fairly each college at each level proportionately, the distribution would be weighted proportionate to enrollment. Therefore, 244 (34.9% of the 700) surveys needed to be distributed at the 1000 level. Of those, 220 surveys (90.1% of the 244) in the College of Arts & Sciences, 12 surveys (4.9% of the 244) in the College of Business, 6 surveys (2.7% of the 244) in the College of Health Professions and Social Work, 0 (0% of the 244) in the College of Education, and 6 surveys (2.3% of the 244) in the College of Engineering.

Using average class size by college divided into the number of students needed within each college, at each academic level, the number of classes within each college at each academic level was determined. For example, the sample selection within the College of Arts & Sciences, the average class size was 35 students. At the 1000 level, to meet the sampling need of approximately 220 surveys, surveys were distributed to 6 random classes. From the total 905 classes offered in the College of Arts and Sciences, 15 classes were selected to participate in the study, 3 out of 178 classes were selected to participate from the College of Business, 1 class out of 64 classes was selected to participate from the College of Health Professions and Social Work, 1 class out of 46 classes was selected to participate from the College of Education, and 1 class out of 44
was selected to participate from the College of Engineering. In total, surveys were
distributed to 21 classes throughout the 5 colleges. Approximately 700 participants, 18
years of age or older were asked to provide written consent to participate in the study.
Participants less than 18 years of age were asked not to participate in the study due to
required parental consent. If students had already taken the survey in another class, they
were asked not to participate again.

Research Questions

This study was an exploratory study. The researcher hoped to contribute to the
existing body of empirical evidence that suggested an association between self-reported
discrimination and health outcomes among a population of university students.

This correlational study was guided by three overarching research questions:

1. Is self-reported discrimination associated with psychological and
   physiological health outcomes among a population of university students?
2. Is race/ethnicity, gender, sexual orientation, or socioeconomic position
   associated with exposure to discrimination?
3. Is self-reported discrimination a unique predictor of health outcomes?

Measures

In this section both the independent and dependent variables will be discussed. In
addition, there will be an overview of the past validated scales and instruments that were
used to construct the new 56 item study instrument, *The Impact of Discrimination on
Health* survey; reliability and validity evidence will be presented for each of the past
validated instruments. Finally, the study instrument, items/questions, will be described.
Independent Variables

All sociodemographic data on race/ethnicity, gender, age, sexual orientation, and socioeconomic position (SEP), as measured by combined family/individual income and possession of medical insurance, were ‘self-reported’ by the study participants.

Discrimination sub variables. The discrimination variable was total ‘self-reported’ discrimination experiences or unfair treatment within a social or interpersonal context. There were 3 discrimination sub variables that were examined throughout this study. The sub variables were: 1) type of discrimination/unfair treatment, 2) situational discrimination, and 3) impact of discrimination. Type of discrimination, was defined as any physical attack, verbal abuse, exposure to discrimination, or unfair treatment due to race/color/ethnicity, gender, or sexual orientation. Type and frequency of discrimination was measured by using the total sub scores from the 18 items selected from Williams’s et al. (1997) Everyday Discrimination Scale, and Brondolo’s et al. (2005) Brief Perceived Ethnic Discrimination Questionnaire; Situational (i.e. work, school, shopping) discrimination was operationally defined as any situation in which discrimination or unfair treatment due to race/color/ethnicity, gender, or sexual orientation occurred. The total sub scores from the eight items selected from Krieger’s et al. (2005) Experiences of Discrimination Scale were used to measure frequency of situational discrimination; Impact of discrimination on one’s life was measured by using the total sub scores from the two selected items from Williams’s et al. (1997) Major Experiences of Discrimination Scale.
**Everyday and Major Experiences of Discrimination Scales**

Williams et al. (1997) developed the *Everyday Discrimination Scale (EDS)* and *Major Experiences of Discrimination Scale (MED)* in 1997 to measure self-reported discrimination in various populations. Both scales have been used in numerous empirical studies measuring the effects of perceived and self-reported discrimination (Krieger et al., 2005; Taylor et al., 2004; Sternthal et al., 2011). The *Everyday Discrimination Scale* consisted of nine Likert-scale items that captured the frequency of experiences in the day to day lives of respondents being mistreated. Some of these items include:

1) You are treated with less courtesy than others;
2) You are treated with less respect than other people;
3) You receive poorer service than other people at restaurants or stores;
4) People act as if they are afraid of you.

The abbreviated 6 item *Major Experiences of Discrimination Scale (MEDS)* attempts to frame in the context of unfairness instead of the context of race/ethnicity (Kessler et al., 1999; Sternthal, et al., 2011; Williams et al., 1997). Williams et al. (1997) defined discrimination as a measure of major experiences of unfair treatment. Several of the items included on the MEDS are:

1) Do you think you have ever been unfairly fired or denied promotion?
2) For unfair reasons, do you think you have ever not been hired for a job?
3) Have you ever been unfairly stopped, searched, or questioned by the police?

**Reliability evidence.** Clark, Coleman and Novak (2004) conducted a research study that explored the psychometric properties of the *Everyday Discrimination Scale* in 120 Black adolescents (65 males and 55 females). A *t-test* analysis revealed that
*Everyday Discrimination Scale* scores were not significantly different for males and females ($p > 0.18$). The alpha reliability coefficient was 0.87, with item-total correlations that ranged from 0.50 to 0.70 ($M = 0.61$). The split-half reliability was 0.83 ($p < .0001$). A principal component analysis yielded one factor, which accounted for approximately 49% of the standardized variance (Clark et al., 2004). Correlation analyses indicated that the *Everyday Discrimination Scale* score was significantly related to internalizing and externalizing symptoms ($p < .0002$).

In order to measure perceived racism, a modified 9 item version of the *Everyday Discrimination Scale* (Forman et al., 1997) was used to assess perceptions of racism (e.g. ‘You are treated with less courtesy than other people’; ‘You have received poorer service than other people’). The modification includes changing the scale instructions from ‘In your day-to-day life how often have any of the following things happened to you?’ to ‘In your day-to-day life how often have any of the following things happened to you ‘BECAUSE OF YOUR RACE’? Using a 6-point Likert scale, the responses ranged from ‘1’ (*Almost every day*) to ‘6’ (*Never*). All items were reverse scored such that higher scores indicated greater perceptions of discrimination. Further tests of reliability indicated that the scale items measured a similar ‘construct’ (Clark et al., 2004).

In a study conducted by Williams et al. (1997), the researchers used data from a 1995 Detroit Area Study (DAS), which was a multistage area probability sample consisting of 1139 respondents with the hopes of measuring race-related stress. Two measures of race-related stress were utilized: discrimination and everyday discrimination, framed in the context of unfair treatment. The 9 item *Everyday Discrimination Scale* was constructed to measure more chronic, routine, and relatively minor experiences of unfair
treatment, exhibited an alpha reliability coefficient of 0.87. The study will report additional reliability evidence for each instrument adding to the body of existing evidence.

**Validity.** Clark et al. (2004) conducted a principal components analysis (varimax rotation) to explore construct validity of the *Everyday Discrimination Scale* (EDS). This analysis revealed that one component emerged with an eigenvalue of 1.0 or greater, which accounted for 49.34% of standardized variance. Component loadings ranged from 0.60 to 0.78. Rotation was not possible, given only one component was identified. It should be noted, however, that a second component whose eigenvalue (0.98) was just below the 1.0 criterion accounted for an additional 10.84% of standardized variance, with subsequent components contributing less than 10% each.

The criterion-related validity of the EDS was assessed by exploring the relationship between perceived racism and youth-reported symptoms (internalizing and externalizing). These analyses indicated that perceived racism was positively related to externalizing ($r = 0.34; p < .0002$) and internalizing ($r = 0.39; p < .0001$) symptoms.

As an additional test of criterion-related validity, symptom reports were compared in participants who reported never experiencing discrimination ($N = 15$) to participants who reported ever experiencing racism ($N = 104$). *T*-test analyses revealed that internalizing symptom *t*-scores were higher among participants who reported ever experiencing racism ($M = 58.89$, $SD = 14.27$), compared to participants who reported never experiencing racism ($M = 45.87$, $SD = 15.85$), $t(117) = -3.26$, $p < .002$). Additional analyses examining validity revealed that the scale items comprised a single component,
and as a whole, perceived racism predicted symptom profiles, which research suggests are related to perceived racism (Nyborg & Curry, 2003).

**The Experience of Discrimination Scale**

The *Experience of Discrimination Scale* (EODS) was constructed by Kreieger et al. (2005). The scale was designed to measure frequency of self-reported discrimination and response to unfair treatment. For example, the instrument asks the question: ‘have you ever experienced discrimination, been prevented from doing something, being hassled or made to feel inferior in specific situations because of race, ethnicity, or color’?

The situations included: at school; getting a job; at work; getting housing; getting medical care; getting service in a store or restaurant; getting credit, bank loans or a mortgage; on the street or in a public setting; or from the police or in the courts. In addition, the scale addresses unfair treatment (Kreieger et al., 2005). Response to unfair treatment was measured by asking respondents: If you have been treated unfairly, do you usually:

1) talk to other people about it or;
2) keep it to yourself”?

Based on the instrument's guidelines, participants were categorized as passively responsive in which they internalized their action, or actively responsive in which they talked to others or did something about their experience. A global question asked, ‘How often do you feel that you have been discriminated against due to race/color or ethnicity’?

Krieger et al. (2005) sought to investigate the validity and reliability of a short self-report instrument, the *Experiences of Discrimination* (EOD) measure. This measure was based on a prior instrument used in the *Coronary Artery Risk Development in Young Adults* (CARDIA) study. Study participants were drawn from a cohort of working class
adults, age 25–64, based in the Greater Boston area, Massachusetts (USA). The main study sample included 159 African American, 249 Latino, and 208 white participants; the validation study included 98 African American and 110 Latino participants who completed a re-test survey two to four weeks after the initial survey. The main and validation survey instruments included the EOD and several single-item discrimination questions; the validation survey also included the Williams et al. (1997) Major Experiences of Discrimination and Everyday Discrimination Scales (Krieger, et al., 2005).

**Reliability of the EOD.** Key findings indicated the EOD instrument can be validly and reliably employed. The EOD scale reliability was high, with a Cronbach’s alpha ≥ .74, \( r = .79 \) and test–re-test reliability coefficients (\( r = .70 \)). Structural equation modeling demonstrated the EOD had the highest correlation (\( r = .79 \)) with an underlying discrimination construct compared to other self-report discrimination measures employed (Cardarelli et al., 2010; Krieger et al., 2005).

**Validation of the EOD.** Krieger et al. (2005)’s univariate analyses results for the EOD, including Cronbach’s alpha, and for filing a formal complaint, were similar for the main and validation study analyses with one exception: self-reports of discrimination (especially “from the police and in the courts”) and of filing a formal complaint were greater for the African American validation (re-test study) participants compared to black main survey participants. Both Williams’ measures (Everyday Discrimination and Major Experiences of Discrimination scales) likewise indicated higher levels of self-reported racial discrimination for the African American compared to the Latino participants, as did the “worry” and “global” questions (Krieger et al., 2005).
The multi-variable analyses (correlation matrix) for the different discrimination measures in the validation study provided statistically significant correlations in excess of 0.55 occurred between the EOD and Williams’ *Major and Everyday Discrimination* measures; correlations between 0.30 and 0.54 occurred between both the ‘‘worry’’ and ‘‘global’’ questions and the EOD and Everyday Discrimination Measure; and correlations between 0.20 and 0.40 occurred between filing a formal complaint and all of the discrimination measures except for the ‘‘global’’ questions (Krieger et al., 2005).

The EOD scale, which included minor and major situations, had the largest correlation with the underlying discrimination construct \((r = 0.79)\), followed by the two Williams’ scales. The confirmatory factor analysis indicated that the EOD items comprised a one-dimensional measure of discrimination, with adequate internal consistency and test–re-test reliability; responses were neither associated with social responsibility nor affected by Differential Item Functioning (DIF) (Krieger et al., 2005).

**The Brief Perceived Ethnic Discrimination Questionnaire–Community Version (Brief PEDQ–CV)**

Brondolo et al. (2005) developed the *Perceived Ethnic Discrimination Questionnaire* (PEDQ-CV) to measure exposure to perceived racism in a university/community setting from any ethnic/racial background. The PEDQ-CV was developed from the 51- items *Perceived Racism Scale* (PRS) (McNeilly et al., 1996). The PRS scale was designed to measure the frequency of Black individuals’ exposure to different types of racist incidents across several settings. The PEDQ–CV Lifetime Discrimination Scale (PEDQ–CV–Total) is a 34–item measure assessing lifetime experiences of ethnic discrimination within a social or interpersonal context. Each question on the scale begins with the phrase: “Because of your race or ethnicity ...”
followed by an item describing exposure to some form of mistreatment or difficulty (e.g., “. . . a clerk or waiter ignored me”). Participants were asked to indicate how often they had ever “had these experiences during their lifetime,” and each item was rated on a 5–point Likert–type scale, with a response of 1 indicating that the event “never happened” and a response of 5 indicating the event “happened very often.” The scale contains four subscales assessing different dimensions of ethnic discrimination: social exclusion, discrimination at work, threat or harassment, and stigmatization. In this sample, the internal consistency alpha coefficient for the full scale was 0.95, and alpha coefficients for the subscales ranged from .74 to .87.

Brondolo et al. (2005) modified the PEDQ-CV, developing a brief 17-item version (Brief PEDQ-CV) based on the results of the factor analysis on the Lifetime Exposure scale, the major portion of the full 34-item PEDQ-CV. The Brief PEDQ-CV was developed for use in research protocols requiring a shorter administration time. The Brief PEDQ-CV was used to evaluate aspects of construct validity, including convergent, concurrent, and discriminate validity because its brevity permitted researchers to administer other measures without undue participant burden.

The psychometric properties of the Brief PEDQ-CV scale, a modified version of PEDQ-CV was evaluated in a sample of 340 college students and community dwelling adults (Brondolo et al., 2005). Despite having fewer items, the subscales had only slightly lower internal consistency than did the full subscales formed from the Lifetime Exposure scale of the PEDQ-CV. Means and Cronbach’s alpha coefficients for the Brief PEDQ-CV ranged from .65 - .88 for all subscales for both groups. The pattern of scores for the Brief PEDQ was identical to that for the full PEDQ-CV, with significant differences
among subscale scores, $F (3, 1002) = 153.76, p < .001$ ($G$-$G$ correction, $p < .001$).

Individuals reported significantly more exclusion/rejection than work discrimination, stigmatization, or threat and aggression. Comparisons between each pair were significant (all $p < .001$) (Brondolo et al., 2005).

**Evaluating construct validity: Tests of convergent, concurrent, and discriminant validity.** A series of tests of construct validity were performed in the student and community samples. The scale demonstrated construct validity when Brief PEDQ-CV scores were examined in relation to measures of appraisals of racist situations and measures of relevant personality characteristics. The convergent validity was evaluated by correlating scores on the Brief PEDQ-CV with those on the Black or Latino version of the PRS (McNeilly, et al., 1996). The Lifetime Discrimination scale of the Brief PEDQ-CV was correlated with the Black version of the PRS ($r = .61, p < .001$) in the sample of 70 Black students and was also highly correlated with the Latino PRS ($r = .57, p < .001$) in the sample of 58 Latino students. This suggests that the scales have good convergent validity with a well-established measure of perceived racism (Brondolo et al., 2005).

The researchers measured concurrent and discriminant validity by examining a community sample; comparing scores on the Lifetime Discrimination scale of the Brief PEDQ-CV with measures of primary appraisals of racist interactions. As predicted, Brief PEDQ-CV Lifetime Discrimination scores were associated positively with primary appraisals of both threat ($r = .43, p < .0001$) and harm ($r = .46, p < .0001$), providing some evidence of concurrent validity (Brondolo et al., 2005). As a further test of construct validity, the researchers examined the relationship of the Brief PEDQ-CV Lifetime
Exposure score to appraisals of threat and harm, controlling for these personality measures. The correlations of the Brief PEDQ-CV to appraisals of harm ($r = .37$, $p < .001$) and threat ($r = .27$, $p < .02$) remained significant after controlling for the personality measures (Brondolo et al., 2005).

**Dependent Variable**

The dependent or criterion variable was self-reported health outcomes. A summary score of eighteen items from two instruments were utilized on the 58 item questionnaire to measure health outcomes. These two validated instruments were: *The Quality Metric’s Standard SF-12v2 Health Survey* Standard Short Form (SF-12v2) and Cohen’s Perceived Stress Scale (PSS).

**Descriptions of past validated health outcomes instruments.** *The Quality Metric’s Standard SF-12v2 Health Survey* is a health survey that uses the total scores from 12 questions to measure overall functional health and well-being (Ware et al., 2001). The standard SF-12v2 which is a practical, reliable, and valid measure of physical and mental health was used to sample a large population to measure, over a 4-week recall period, self-reported health outcomes. The SF-12v2 health survey is the most widely used tool in the world for measuring health-reported outcomes, with more than 76,000,000 surveys taken and over 19,000 licenses issued to date (Ware et al., 2001). By August 2006, over 8,500 articles and other publications about the Short Form surveys were identified. Most of these publications (more than 7,000) are about the SF-36® and SF-12v2 Health Survey. The improved question wording and simplified response categories of the SF-12v2 Health Survey make this revised version easier to understand and administer and less culturally biased than the original versions (Ware et al., 2001).
The SF-12v2 measures eight health domains within the physical & mental health components. These eight health domains are: Physical Functioning, Role- Physical, Bodily Pain, General Health, Vitality, Social Functioning, Role- Emotional, and Mental Health. Each survey provides psychometrically-based physical component summary (PCS) and mental component summary (MCS) scores. Scores are calibrated so that 50 is the average score or norm. Scoring algorithms are then applied to produce the PCS and MCS scores. This norm-based score allows comparison among the three surveys and across the more than 17,000 studies published in the past 20 years (Ware et al., 2010).

The Perceived Stress Scale (PSS)

Cohen developed the Perceived Stress Scale (PSS) in 1983 (Cohen, Kamarck, & Mermelstein, 1983; Cohen & Williamson, 1988). The PSS is the most widely used psychological instrument for measuring the perception of stress. It is a measure of the degree to which situations in one’s life are appraised as stressful. Discrimination is a social stressor (Cohen et al., 1983) and the PSS may identify an association between discrimination and stress.

Items were designed to measure how unpredictable, uncontrollable, and overloaded respondents find their everyday lives. The scale also includes a number of direct queries about current levels of experienced stress. Moreover, the questions are of a general nature and hence are relatively free of content specific to any sub-population group. The 10 questions in the PSS ask about feelings and thoughts during the last month. In each case, respondents are asked how often they felt a certain way. Examples of the 10 item PSS include:

1) In the last month how often have you felt nervous and stressed?
2) In the last month how often have you felt that difficulties were piling up so high that you could not overcome them?

3) In the last month how often have you felt that you could not cope with all the things that you had to?

For each item participants respond on a 5-point scale ranging from 1 = never to 5 = very often. Four items that are worded in a positive direction will be reverse-scored and the responses to the 10 items are then summed to create a psychological stress score, with higher scores indicating greater psychological stress. Cohen et al. (1983) adapted his 6 item PSS from his earlier 10 item PSS due to time constraints. The 6 questions on the PSS ask about feelings and thoughts during the last month. In each case, respondents are asked how often they felt a certain way. For each item participants respond on a 5-point scale ranging from 1 = never to 5 = very often. Two of the six items that are worded in a positive direction will be reverse-coded; the responses to the 6 items will then be totaled to create a psychological stress score, with higher scores indicating greater psychological stress.

The internal consistency reliability (Cronbach’s $\alpha$) for the PSS-4 was .78 in the L. Harris Poll sample and .91 in both the 2006 and 2009 eNation samples (Cohen & Janicki-Deverts, 2010). The norm group data were gathered in 2006 and 2009 from 2,387 respondents in the United States.

**Development of the Study Instrument – The Impact of Discrimination on Health Survey**

According to Krieger et al. (2005), survey instruments constructed to measure perceived discrimination should be conceptualized as measuring self-reported experiences of discrimination, because while self-reported experiences must be
perceived, not all perceived experiences are necessarily reported, depending upon individuals’ willingness or ability to report them. All 46 of the 56 items (10 were demographic questions) on the *Impact of Discrimination on Health* survey were answered according to the participant’s perception of ‘self-reported discrimination experiences’ and overall well-being. Since the experience of discrimination is a complex, multidimensional phenomenon, the survey assessed the experience of discrimination in a multidimensional manner. The instrument not only provided a measure of frequency of exposure to discrimination among university students, but attempted to assess behavioral and emotional responses to discrimination. The final study survey was created from 6 validated instruments used and validated in several studies to assess the association of self-reported discrimination and health outcomes. The 4 validated instruments used within the survey to measure self-reported discrimination and unfair treatment were: 1) Williams’s et al. (1997) *Everyday Discrimination Scale* (EDS), 2) Williams’s et al. (1997), *Major Experiences of Discrimination Scale*, 3) Krieger’s et al. (2005) *Experiences of Discrimination* (EOD) scale, and 4) Brondolo’s et al. (2005) *Brief Perceived Ethnic Discrimination Questionnaire* (Brief PEDQ-CV).

The 2 validated instruments used within the survey to measure mental and physical health status were: 1) *The Quality Metric’s Medical Outcomes Study Short Form* (SF-12v2) Health Survey and 2) *The Perceived Stress Scale* (Cohen et al., 1983-22A; Cohen & Williamson, 1988-22). Several items were taken from each of these 6 globally validated instruments to construct the final 56 item survey that was used in this study.

**Self-reported discrimination items.** In order to measure ‘self-reported’ experiences of discrimination, specific survey items addressed: (1) frequency of day to
day (i.e. physical attack, verbal abuse or any exposure to discrimination or unfair
treatment) discrimination/unfair treatment, (2) situations in which unfair treatment or
discrimination occurred, and (3) the extent to which discrimination has impacted one’s
life.

Survey items pertaining to unfair treatment/discrimination due to ethnicity, race
color, SEP, gender, or sexual orientation reflect chronic, ongoing, day-to-day experiences
of mistreatment or discrimination (Brondolo et al., 2005; Williams et al., 1997). Eighteen
items captured the frequency of unfair treatment/discrimination experiences among a
university student’s day-to-day life. Some of these items included: ‘Because of your race,
etnicity, color, SEP, gender, or sexual orientation, have others treated you:
1) with less courtesy than others;
2) with less respect than others;
3) as if you are not smart;
4) as if they are afraid of you;
5) as if you are dishonest?

Self-reported unfair treatment/discrimination was assessed in the following way:
A = (Never), B = (Once), C = (Two times), D = (Three times), and E = (Four or more
times). The 18 items used to capture frequency of day to day unfair
treatment/discrimination experiences were recoded from A - E to a five-point Likert scale
(1 – 5) with higher scores indicating higher frequencies of unfair treatment/
discrimination. For questions pertaining to situational ‘self-reported’ unfair treatment/
discrimination, participants were presented with 8 situations in which they self-reported
frequency of unfair treatment/discrimination (Krieger et al, 2005). Participants reported
how often they had experienced unfair treatment/discrimination in specific situations by selecting: $A = (Never)$, $B = (Once)$, $C = (Two\ times)$, $D = (Three\ times)$, and $E = (Four\ or\ more\ times)$. The 8 items assessing situational unfair treatment/discrimination were recoded from A – E to a five-point Likert scale $(1 – 5)$ with higher scores indicating higher frequencies of situational unfair treatment/discrimination.

Based on a modified version of William’s et al. (1997) *Major Experiences of Discrimination* measure used in the *MacArthur Foundation Network on Successful Midlife Development National Survey* (MIDMAC) (Kessler et al., 1999), 2 global questions were selected to address the extent to which exposure to discrimination has impacted one’s life. Participants self-reported by selecting: $A = (Not\ at\ all)$, $B = (A\ little)$, $C = (Some)$ and $D = (A\ lot)$. The items assessing impact of discrimination were recoded from A – D to a four-point Likert scale $(1 – 4)$, with higher scores indicating a perceived greater impact of discrimination.

**Self-reported mental and physical health status.** To measure self-reported health status, 18 of the 56 items were selected from *The Medical Outcomes Study Standard Short Form* (SF-12v2) and the PSS. For example, participants were asked, ‘During the past 4 weeks, how much time were you limited in the kind of work or activities you like to do as a result of your physical health’? Choices included: $A = (All\ of\ the\ time)$, $B = (Most\ of\ the\ time)$, $C = (Sometimes)$, $D = (A\ little\ of\ the\ time)$, and $E = (Never)$. Survey items were recoded from A – E to a five-point Likert scale $(5 – 1)$, with higher scores indicating poorer health status.
Research Design

Design

The research design was a cross-sectional correlational design. The study allowed the researcher to investigate a wide population of university undergraduate students from various ethnicities and social backgrounds with the aim of identifying self-reported discrimination as a potential threat to overall health status.

Data Collection Procedures

Data collection began in the 2012 fall semester after final fall undergraduate registration was completed. Using *Statistical Package for the Social Sciences* (SPSS) 20, approximately 21 main campus, undergraduate classes were randomly selected from the total 1,237 undergraduate courses offered at the university. Each randomly selected course instructor was contacted by phone and invited to participate in the study. If they choose to participate, a letter of cooperation was sent via email, asking for instructor signature. The researcher requested that the form be returned by inner-office mail to the researcher. The instructor was asked if he/she was willing to administer the survey to his/her class during the class meeting time. If so, the researcher discussed the study logistics, study expectations, and then made arrangements with all 21 instructors to deliver all study materials. If the survey administration was not feasible or created a hardship for the instructor, the selected class/instructor was removed from the study and another undergraduate class/instructor was randomly selected from the same college.

Instructors were given enough study materials for their class size. The materials included: study protocol script to be read out loud before the survey administration, *Scantron* answer sheets, study questionnaires, with 2 attached copies of the study consent
forms, and extra pencils/pens. This was a voluntary study and the participants were to be 18 years of age or older to participate. University Internal Review Board (IRB) protocol required two copies of the consent form, 1 to be signed by the participant and returned to the researcher and 1 to be retained by the participant for their records. Each instructor was asked to follow the study protocol to control for consistent administration. The students could volunteer or decline to participate in the study. After the survey was completed the instructor was asked to notify the researcher in order to pick up all study materials. In piloting the survey for administration time, after 10 respondents taking the survey, it was found that the survey took approximately 25 minutes to complete, including reading the study directions, reading directions, and signing the consent form.

**Internal and External Validity Threats**

A potential threat to external validity may be the decision to generalize the applicability of study results, which is often in the mind of the “beholder”. The study proposed here was an exploratory study whose aim was not to generalize results to the population. Rather, the study was intended to investigate an association between self-reported discrimination and health outcomes among Southwest Florida university students. These study findings may not be generalized beyond the state of Florida; study results are only limited to Southwest Florida universities with similar student demographics and population (size).

Fraenkel and Wallen (2006) stated, “When a study has internal validity, it means that any relationship observed between two or more variables should be unambiguous as to what it means rather than being due to “something else” (p.169). Potential threats to internal validity in correlational research include subject characteristics. Because
participation in the study was voluntary and was not connected with course evaluation or final grade, some respondents may have been tired or not interested in participating in the study; some may have decided not to be truthful and/or just arbitrarily answer questions without consideration for valid study results.

Respondents may have been located in classrooms that were distracting or uninviting for survey administration and refused to participate or just not care to respond. Another threat to validity may have been that the instructor may felt rushed and did not follow survey administration protocol as directed. By not following the protocol, there could have been data collector bias or skew data collection methodology and may have threatened data validity. In order to control for this, the researcher talked with the instructor to verify that they were comfortable with administering the survey and that they did have time during their class meetings. In order to control for data collector bias, the instructor was given a script that contained complete survey administration directions. The instructor was asked to read the directions out loud to his/her class, with the hope that the directions were read consistently throughout the study.

Data Analysis Procedures

All statistical analyses were performed using the Remark Classic Optical Mark Recognition (OMR) version 4.2 software package and SPSS version 20.0. Descriptive statistics were provided for all variables. Demographical data and frequencies were provided for categorical data and means and standard deviations were provided for continuous variables.

For the purpose of this study, data was obtained from 527 university undergraduate students who were enrolled in classes during the fall 2012 academic year.
After examining the data compiled from the sample of university students who volunteered to participate in the study, self-reported discrimination experiences and health outcomes were correlated and analyzed.

Specifically, data collected addressing the first research question “is perceived discrimination associated with self-reported psychological and physiological health outcomes among university students?” was analyzed through a Multivariate Analysis of Variance (MANOVA). The total scores from the 28 discrimination items and the total scores from the 18 health outcomes items were analyzed and compared. Data collected addressing the second research question “is race/ethnicity, gender, sexual orientation, or socioeconomic position associated with exposure to discrimination?” was analyzed using a factorial analysis of variance (ANOVA). Data collected addressing the third research question: “is perceived discrimination a unique predictor of health outcomes?” was analyzed using a simple regression. A bivariate correlation and simple regression was the statistical techniques employed in this study. The Pearson correlation coefficient was used to examine relationship between student health outcomes (dependent variable) and self-reported discrimination (independent variable) experiences. Statistical significance was assessed at the alpha = .01 level to protect against Type I error.

**Assumptions, Limitations, and Delimitations**

The study was based on the following assumptions:

1) That all participants truthfully answered the 56 item questionnaire;

2) That the constructs (self-reported discrimination and health outcomes) the researcher was measuring was and could be assessed;
3) That all study participants had the reading skills and mental capacity to understand and answer the 56 item questionnaire.

4) By selecting key items from the 6 validated instruments to construct the study survey, it was assumed that the selected items would remain valid and reliable when combined with other items on the study instrument.

This study had several limitations. First, the study was a correlational study and therefore the researcher could not determine the direction of the relationship of self-reported discrimination to negative health effects; the data were cross-sectional and provided no basis for causal directionality. The sample was one of convenience; it would be beneficial in the future to replicate these findings in a larger lower income diverse community based sample to demonstrate the generalizability of these effects.

This study took place in the Southwest Florida area. There may have been regional differences in experiences and psychosocial correlates of perceived or self-reported discrimination. These study findings may not be generalized beyond the state of Florida; study results may only be limited to Southwest Florida universities with similar student demographics and population (size).

Additional study limitations consisted of how the data were procured (protocol was not followed by instructors delivering the survey). It is hoped by the researcher that all faculty did procure all student data according to the pre-determined study/direction protocol. Data collection bias may have entered the study if the instructors rushed or hurried the students during survey administration. Due to class time constraints, lack of assistance, or carelessness, student participants may have rushed and answered
incorrectly or not filled in the bubble completely on their individual Scantron sheets which could have skewed the final results.

The researcher did not have the opportunity to administer the surveys personally and did not have the opportunity to be present during each of the 21 survey administrations.

Another limitation for this study was the conceptualization and measurement of experiences of discrimination and/or unfair treatment. Factors such as: social status, personal history, and geographic location may have impacted how self-reported discrimination was interpreted and measured. Much of the literature assessing the association between discrimination and health outcomes has relied on single-item indicators of discrimination making it difficult to assess why and how often discrimination occurs. In addition, exposure to discrimination has to rely on ‘self-report’ which is subjective and frequently may be perceived but not reported; often respondents may find it difficult to distinguish between acute, episodic exposure to discrimination and chronic everyday discrimination. This is often left to the emotional perceived interpretation by the respondent when self-reporting exposure to unfair treatment or discrimination. Despite these limitations, the study will contribute to a growing body of literature that supports the negative psychological correlates of self-reported discrimination in a Southwest Florida university student population.

Research is often delimited by lack of resources and therefore the scope of the research is narrowed to a smaller geographic location (e.g. a smaller Southwest Florida university). Due to geographical location, resources, and time constraints on research,
university faculty, and staff members, a smaller sample than desired was selected. Lastly, appropriate controls to address internal validity threats may not be employed.
CHAPTER IV

RESULTS

Overview

The research findings presented in this chapter are divided into four sections. The first section includes a review of the three overarching research questions that directed the study. The second section includes sample sociodemographic characteristics, frequency of discrimination experiences, followed by sample descriptive statistics. The third section includes the three overarching research questions and the statistical analyses presented in Chapter 3. Lastly, chapter four includes a summary of the results and additional findings.

Research Questions

Statistical analyses were used to analyze the three research questions:

1. Is perceived discrimination associated with self-reported psychological and physiological health outcomes among university students?
2. Is race/ethnicity, gender, sexual orientation, or socioeconomic position associated with exposure to discrimination?
3. Is perceived discrimination a unique predictor of health outcomes?

Descriptive Analysis-Sample Sociodemographic Characteristics

Data were collected from 527 university undergraduate students who were enrolled in university classes during the fall 2012 academic year at a Southwest Florida public university. A total of 711 university students were asked to participate in the study, 170 students declined to participate in the study because of possible replication (already had taken the survey in another class) or unwillingness to participate. Data collected from 14 participants were discarded because of having more than one response selected and/or
incomplete data. All participant responses were reflective of the demographics of the university; there were no significant differences between study participants and the university population along the various demographics. Table 1 presents the frequency distribution for the entire sample by age, academic level, parental education, and income/SEP.

Table 1

*Frequency Distribution for Entire Sample by Age, Academic Level, Parental Education, and Income/SEP*

<table>
<thead>
<tr>
<th>Grouping Variables</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cum Frequency</th>
<th>Cum Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age Group</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>73</td>
<td>13.85%</td>
<td>73</td>
<td>13.85%</td>
</tr>
<tr>
<td>19</td>
<td>109</td>
<td>20.68%</td>
<td>182</td>
<td>34.54%</td>
</tr>
<tr>
<td>20</td>
<td>103</td>
<td>19.54%</td>
<td>285</td>
<td>54.08%</td>
</tr>
<tr>
<td>21</td>
<td>83</td>
<td>15.75%</td>
<td>368</td>
<td>69.83%</td>
</tr>
<tr>
<td>Over 21</td>
<td>159</td>
<td>30.17%</td>
<td>527</td>
<td>100.00%</td>
</tr>
<tr>
<td><strong>Academic Level</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Freshman</td>
<td>78</td>
<td>14.80%</td>
<td>78</td>
<td>14.80%</td>
</tr>
<tr>
<td>Sophomore</td>
<td>134</td>
<td>25.43%</td>
<td>212</td>
<td>40.23%</td>
</tr>
<tr>
<td>Junior</td>
<td>162</td>
<td>30.74%</td>
<td>374</td>
<td>70.97%</td>
</tr>
<tr>
<td>Senior</td>
<td>153</td>
<td>29.03%</td>
<td>527</td>
<td>100.00%</td>
</tr>
<tr>
<td><strong>Maternal Education</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than H.S. Dipl.</td>
<td>24</td>
<td>4.55%</td>
<td>24</td>
<td>4.55%</td>
</tr>
<tr>
<td>Earned H.S. Dipl.</td>
<td>186</td>
<td>35.29%</td>
<td>210</td>
<td>39.85%</td>
</tr>
<tr>
<td>College Degree</td>
<td>317</td>
<td>60.15%</td>
<td>527</td>
<td>100.00%</td>
</tr>
</tbody>
</table>
Participants ranged from 18 (13.85%) to over 21 (30.17%) years of age. Seventy-eight (14.8%) of the participants were freshmen, 134 (25.43%) of the participants were sophomores, 162 (30.74%) of the participants were juniors, and 153 (29.03%) of the participants were seniors. Within the study, 21.25 % ($n = 112$) of the participants reported, before taxes and after combining their parent’s previous year’s income, that they earned between $50,000-$79,999 last year; in addition, 18.79% ($n = 99$) of the participants reported earning less than $25,000 last year, before taxes and after combining their parent’s income. With regard to highest level of education completed by the participants’ mothers, 24 (4.55%) of the participants disclosed that their mothers did not earn high school diploma, 186 (35.29%) of the participants reported that their mothers had earned a high school diploma, and 317 (60.15%) of the participants reported that

<table>
<thead>
<tr>
<th>Grouping</th>
<th>Variables</th>
<th>Frequency</th>
<th>Percent</th>
<th>Cum Frequency</th>
<th>Cum Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paternal Education</td>
<td>Less than H.S. Dipl.</td>
<td>31</td>
<td>5.88%</td>
<td>31</td>
<td>5.88%</td>
</tr>
<tr>
<td></td>
<td>Earned H.S. Dipl.</td>
<td>207</td>
<td>39.28%</td>
<td>238</td>
<td>45.16%</td>
</tr>
<tr>
<td></td>
<td>College Degree</td>
<td>289</td>
<td>54.84%</td>
<td>527</td>
<td>100.00%</td>
</tr>
<tr>
<td>Income/SEP</td>
<td>Less than $25,000</td>
<td>99</td>
<td>18.79%</td>
<td>99</td>
<td>18.79%</td>
</tr>
<tr>
<td></td>
<td>$25,000 – $49,999</td>
<td>101</td>
<td>19.17%</td>
<td>200</td>
<td>37.95%</td>
</tr>
<tr>
<td></td>
<td>$50,000 – $79,999</td>
<td>112</td>
<td>21.25%</td>
<td>312</td>
<td>59.20%</td>
</tr>
<tr>
<td></td>
<td>$80,000 – $100,000</td>
<td>105</td>
<td>19.92%</td>
<td>417</td>
<td>79.13%</td>
</tr>
<tr>
<td></td>
<td>Greater than $100,000</td>
<td>110</td>
<td>20.87%</td>
<td>527</td>
<td>100.00%</td>
</tr>
<tr>
<td>Sample Total</td>
<td></td>
<td>527</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
their mothers had earned an associate’s degree, bachelor’s degree or other professional graduate degree. With regard to highest level of education completed by the participants’ fathers, 31 (5.88%) of the participants reported that their fathers did not earn a high school diploma, 207 (39.28%) of the participants reported that their fathers had earned a high school diploma, and 289 (54.84%) reported that their fathers had earned an associate’s degree, bachelor’s degree or other professional degree.

Table 2 presents sample counts according to ethnicity, sexual orientation, health insurance status, and gender. The study sample included 26 African American (4.9%), 9 Asian (1.7%), 404 Caucasian (76.7%), 66 Hispanic (12.5%), and 22 ‘Other’ (4.2%) student participants. Two hundred forty-five participants were Caucasian females, 159 were Caucasian males, with 1 member from each of the Asian, Hispanic and ‘other’ groups self-reporting as transgender. Three-hundred eighteen participants (60.3%) were female, 204 (38.7%) were male, and 5 (.9%) self-reported as identifying as transgender. When self-reporting sexual orientation, 93 % (n = 490) of the sample identified as heterosexual, 3.2 % (n = 17) as bisexual, 1.5% (n = 8) as homosexual, 1.2% (n = 6) as lesbian, and 1.1% (n = 6) as ‘other’ or questioning. Most of the student participants (n = 342, 64.9%) reported that they were covered under their parent’s’ health insurance policy, while 98 (18.6%) of the participants reported having their own health insurance, and 87 (16.5%) of the participants reported not having any health insurance.
Table 2

Sample Counts by Ethnicity, Sexual Orientation, Health Insurance Status, and Gender

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Male</th>
<th>Female</th>
<th>Transgender</th>
<th>Row Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>African American</td>
<td>8</td>
<td>16</td>
<td>2</td>
<td>26 (4.9%)</td>
</tr>
<tr>
<td>Asian</td>
<td>5</td>
<td>3</td>
<td>1</td>
<td>9 (1.7%)</td>
</tr>
<tr>
<td>Caucasian</td>
<td>159</td>
<td>245</td>
<td>0</td>
<td>404 (76.7%)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>24</td>
<td>41</td>
<td>1</td>
<td>66 (12.5%)</td>
</tr>
<tr>
<td>Other</td>
<td>8</td>
<td>13</td>
<td>1</td>
<td>22 (4.2%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sexual Orientation</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Heterosexual</td>
<td>192</td>
<td>297</td>
<td>1</td>
<td>490 (93.0%)</td>
</tr>
<tr>
<td>Homosexual</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>8 (1.5%)</td>
</tr>
<tr>
<td>Lesbian</td>
<td>3</td>
<td>3</td>
<td>0</td>
<td>6 (1.2%)</td>
</tr>
<tr>
<td>Bisexual</td>
<td>3</td>
<td>12</td>
<td>2</td>
<td>17 (3.2%)</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>5</td>
<td>1</td>
<td>6 (1.1%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Health Insurance Status</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Owned Policy</td>
<td>37</td>
<td>60</td>
<td>1</td>
<td>98 (18.6%)</td>
</tr>
<tr>
<td>Covered by Parents’ Policy</td>
<td>140</td>
<td>200</td>
<td>2</td>
<td>342 (64.9%)</td>
</tr>
<tr>
<td>Not Covered</td>
<td>27</td>
<td>58</td>
<td>2</td>
<td>87 (16.5%)</td>
</tr>
<tr>
<td>Gender Totals</td>
<td>204 (38.71%)</td>
<td>318 (60.34%)</td>
<td>5 (0.01%)</td>
<td></td>
</tr>
</tbody>
</table>

N = 527

As the sociodemographic variables in Table 3 indicate, the majority of the sample consisted of Caucasian students (n = 113) over the age of 21. As of fall 2012, most of the Caucasians (n = 123) were juniors, with 117 seniors, 100 sophomores, and 64 freshman self-reporting. Three hundred eighty -three Caucasian students identified as heterosexual, with the remainder of the Caucasian students (n = 21) identified as homosexual, lesbian, bisexual or ‘other”. The majority of the Caucasian participants (n = 253) reported that
their mothers had earned graduate or professional degrees. In addition, 234 of the
participants reported that their fathers had earned graduate or professional degrees as
well. The majority of Caucasians \( n = 353 \) reported having health insurance, while 3 of
the Asian, 7 of the African American, 22 of the Hispanic, and 4 of the ‘Other’ students
reporting that they did not have health insurance.

Table 3

*Socio-demographic Characteristics for Sample by Ethnicity*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Asian</th>
<th>Afr. Amer.</th>
<th>Hispanic</th>
<th>Caucasian</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>0</td>
<td>4</td>
<td>6</td>
<td>60</td>
<td>3</td>
</tr>
<tr>
<td>19</td>
<td>2</td>
<td>10</td>
<td>14</td>
<td>79</td>
<td>4</td>
</tr>
<tr>
<td>20</td>
<td>2</td>
<td>1</td>
<td>15</td>
<td>82</td>
<td>3</td>
</tr>
<tr>
<td>21</td>
<td>1</td>
<td>2</td>
<td>9</td>
<td>70</td>
<td>1</td>
</tr>
<tr>
<td>Over 21</td>
<td>4</td>
<td>9</td>
<td>22</td>
<td>113</td>
<td>11</td>
</tr>
<tr>
<td><strong>Academic Level</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Freshman</td>
<td>1</td>
<td>4</td>
<td>6</td>
<td>64</td>
<td>3</td>
</tr>
<tr>
<td>Sophomore</td>
<td>1</td>
<td>10</td>
<td>17</td>
<td>100</td>
<td>6</td>
</tr>
<tr>
<td>Junior</td>
<td>4</td>
<td>4</td>
<td>27</td>
<td>123</td>
<td>4</td>
</tr>
<tr>
<td>Senior</td>
<td>3</td>
<td>8</td>
<td>16</td>
<td>117</td>
<td>9</td>
</tr>
<tr>
<td><strong>Sexual Orientation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heterosexual</td>
<td>7</td>
<td>19</td>
<td>62</td>
<td>383</td>
<td>19</td>
</tr>
<tr>
<td>Homosexual</td>
<td>-</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>-</td>
</tr>
<tr>
<td>Lesbian</td>
<td>1</td>
<td>3</td>
<td>-</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>Bisexual</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>13</td>
<td>-</td>
</tr>
<tr>
<td>Other</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>
Table 3 (continued)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Asian</th>
<th>Afr. Amer.</th>
<th>Hispanic</th>
<th>Caucasian</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Maternal Education</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than H.S. Dipl.</td>
<td>1</td>
<td>3</td>
<td>8</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>Earned H.S. Dipl.</td>
<td>4</td>
<td>8</td>
<td>26</td>
<td>142</td>
<td>6</td>
</tr>
<tr>
<td>College Degree</td>
<td>4</td>
<td>15</td>
<td>32</td>
<td>253</td>
<td>13</td>
</tr>
<tr>
<td><strong>Paternal Education</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than H.S. Dipl.</td>
<td>-</td>
<td>1</td>
<td>16</td>
<td>13</td>
<td>1</td>
</tr>
<tr>
<td>Earned H.S. Dipl.</td>
<td>4</td>
<td>15</td>
<td>22</td>
<td>157</td>
<td>9</td>
</tr>
<tr>
<td>College Degree</td>
<td>5</td>
<td>10</td>
<td>28</td>
<td>234</td>
<td>12</td>
</tr>
<tr>
<td><strong>Income/SEP</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than $25,000</td>
<td>2</td>
<td>7</td>
<td>17</td>
<td>66</td>
<td>7</td>
</tr>
<tr>
<td>$25,000 – $49,999</td>
<td>1</td>
<td>7</td>
<td>22</td>
<td>64</td>
<td>7</td>
</tr>
<tr>
<td>$50,000 – $79,999</td>
<td>3</td>
<td>5</td>
<td>9</td>
<td>92</td>
<td>3</td>
</tr>
<tr>
<td>$80,000 – $100,000</td>
<td>2</td>
<td>3</td>
<td>10</td>
<td>86</td>
<td>4</td>
</tr>
<tr>
<td>Greater than $100,000</td>
<td>1</td>
<td>4</td>
<td>8</td>
<td>96</td>
<td>1</td>
</tr>
<tr>
<td><strong>Health Insurance Status</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>6</td>
<td>19</td>
<td>44</td>
<td>353</td>
<td>18</td>
</tr>
<tr>
<td>No</td>
<td>3</td>
<td>7</td>
<td>22</td>
<td>51</td>
<td>4</td>
</tr>
<tr>
<td><strong>Ethnicity Totals</strong></td>
<td>6 (0.01%)</td>
<td>26 (4.93%)</td>
<td>66 (12.52%)</td>
<td>404 (76.66%)</td>
<td>22 (4.17%)</td>
</tr>
</tbody>
</table>

*N = 527*

**Experiences of Discrimination Results**

To examine frequency of experiences of discrimination (EOD) and/or unfair treatment, participants’ responses to discrimination/unfair treatment items were recoded to ‘yes’ and ‘no’ responses. If the participants indicated that they had experienced at least one incident of discrimination or unfair treatment, the response was recoded from once, two times, three times or four or more times to ‘yes’. If the participant had indicated that
they had ‘never’ experienced an incidence of discrimination or unfair treatment the response was recoded from ‘never’ to ‘no’. Table 4 displays survey results by percentage of students reporting experiences of discrimination or unfair treatment according to ethnicity. All survey questions (items 11-28) began with: “because of your race, ethnicity, color, physical appearance, socioeconomic status, gender, religion, or sexual orientation have…”

Table 4

*Percentage of Students Reporting Experiences of Discrimination by Ethnicity*

<table>
<thead>
<tr>
<th>Item</th>
<th>Asian</th>
<th>Afr. Amer.</th>
<th>Hispanic</th>
<th>Caucasian</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>You been treated unfairly by staff?</td>
<td>22.2%</td>
<td>38.5%</td>
<td>19.7%</td>
<td>13.9%</td>
<td>22.7%</td>
</tr>
<tr>
<td>Others thought that you could not do things?</td>
<td>11.1%</td>
<td>34.6%</td>
<td>22.7%</td>
<td>24.8%</td>
<td>31.8%</td>
</tr>
<tr>
<td>Others threatened to hurt you?</td>
<td>-</td>
<td>15.4%</td>
<td>12.1%</td>
<td>10.4%</td>
<td>13.6%</td>
</tr>
<tr>
<td>People thought that you were not smart?</td>
<td>22.2%</td>
<td>57.7%</td>
<td>42.4%</td>
<td>34.7%</td>
<td>22.7%</td>
</tr>
<tr>
<td>Others acted afraid of you?</td>
<td>22.2%</td>
<td>42.3%</td>
<td>19.7%</td>
<td>17.1%</td>
<td>22.7%</td>
</tr>
<tr>
<td>Others hinted that you were dishonest?</td>
<td>25.8%</td>
<td>30.8%</td>
<td>25.8%</td>
<td>12.9%</td>
<td>27.3%</td>
</tr>
<tr>
<td>Others hurt you?</td>
<td>11.1%</td>
<td>23.1%</td>
<td>9.1%</td>
<td>9.7%</td>
<td>13.6%</td>
</tr>
<tr>
<td>Others called you names?</td>
<td>22.2%</td>
<td>34.6%</td>
<td>37.9%</td>
<td>34.9%</td>
<td>40.9%</td>
</tr>
<tr>
<td>Others threatened to damage your property?</td>
<td>14.1%</td>
<td>11.5%</td>
<td>7.6%</td>
<td>8.2%</td>
<td>13.6%</td>
</tr>
<tr>
<td>Others damaged your property?</td>
<td>-</td>
<td>3.8%</td>
<td>6.1%</td>
<td>5.4%</td>
<td>9.1%</td>
</tr>
<tr>
<td>Others made you feel like an outsider?</td>
<td>22.2%</td>
<td>50.0%</td>
<td>37.9%</td>
<td>31.2%</td>
<td>45.5%</td>
</tr>
<tr>
<td>Others treated you with less respect?</td>
<td>31.2%</td>
<td>26.9%</td>
<td>33.3%</td>
<td>18.6%</td>
<td>31.8%</td>
</tr>
<tr>
<td>Staff members made you feel like an outsider?</td>
<td>-</td>
<td>23.1%</td>
<td>7.6%</td>
<td>8.4%</td>
<td>31.8%</td>
</tr>
<tr>
<td>Others ignored you?</td>
<td>22.2%</td>
<td>38.5%</td>
<td>34.8%</td>
<td>26.7%</td>
<td>36.4%</td>
</tr>
</tbody>
</table>
According to the results presented in Table 4, when responding to survey items addressing experiences of discrimination/unfair treatment, African American students experienced the highest percentage of incidents of discrimination/unfair treatment on 11 of the 18 items. Students who identified as ‘other’ scored the highest percentage of discrimination/unfair treatment on 6 of the 18 items. Hispanic students scored the highest percentage of experiences of discrimination/unfair treatment on 1 of the 18 items. Asian and Caucasian students reported the lowest percentage of incidents of discrimination or unfair treatment, at 11 and 7 of 18 items respectively.

### Experiences of Discrimination Sub-score Results

Experiences of discrimination (EOD) sub scores were calculated from survey items 11-38 that addressed: (1) frequency of day to day discrimination/unfair treatment, (2) incidences of unfair treatment/discrimination in specific situations, and (3) the extent to which discrimination has impacted one’s life. Each of the 527 participants accumulated ‘self-reported’ discrimination sub - scores. All frequencies of discrimination/ unfair treatment and situational discrimination were reported on a 1
(lowest incidence) to 5 (highest incidence) point Likert scale. Impact of discrimination was reported on a 1 (lowest impact) to 4 (highest impact) point Likert scale. Table 5 displays data for the sample indicating all self-reported EOD survey item sub-scores.

Table 5

Sample Self-Reported Experiences of Discrimination Sub Scores

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
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<td>9.49</td>
<td>18.00</td>
<td>76.00</td>
</tr>
<tr>
<td>Situational Discrimination</td>
<td>9.72</td>
<td>2.98</td>
<td>8.00</td>
<td>30.00</td>
</tr>
<tr>
<td>Impact of Discrimination</td>
<td>2.62</td>
<td>1.10</td>
<td>2.00</td>
<td>8.00</td>
</tr>
</tbody>
</table>

N = 527

The survey items (11-38) addressing day to day discrimination had the highest mean value of 24.73; the survey items (37 & 38) addressing impact of discrimination had the lowest mean value of 2.62.

Experiences of Discrimination Summary Score Results

The possible EOD summary score from survey items 11-38, could range from 28 (lowest incidence) to 138 (highest incidence) points. Data for self-reported EOD summary scores according to gender, ethnicity, sexual orientation, and SEP/income are provided in Table 6. According to the results for the study population, the minimum summary EOD score was 28.00; the maximum summary EOD score was 112.00; the mean value was 37.07, with a standard deviation (SD) of 12.27. According to the displayed results transgender participants (n = 5) had the highest mean value (50.80), while male participants (n = 204) had the lowest mean value (35.79) for total discrimination experiences. African American participants (n = 26) had the highest mean value (45.46), with Asian participants (n = 9) reporting the lowest mean value of 33.78 for total experiences of discrimination. When self-reporting by sexual orientation, the
‘other’ participants \((n = 6)\) had the highest mean value (53.00) for overall discrimination experiences, while the homosexual, lesbian, and bisexual groups scored a mean value of 44.00. The heterosexual group reported the lowest mean value of 36.43. The participants earning less than $25,000 a year \((n = 99)\) reported the highest mean value of 39.96, while students earning $100,000 or more a year \((n = 110)\) reported the lowest mean value of 35.75.

Table 6

Sample Self-Reported Total Experiences of Discrimination (Summary Scores)

<table>
<thead>
<tr>
<th></th>
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<th>M</th>
<th>SD</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
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<td><strong>Gender</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>204</td>
<td>35.79</td>
<td>11.89</td>
<td>28.00</td>
<td>95.00</td>
</tr>
<tr>
<td>Female</td>
<td>318</td>
<td>37.68</td>
<td>12.15</td>
<td>28.00</td>
<td>112.00</td>
</tr>
<tr>
<td>Transgender</td>
<td>5</td>
<td>50.80</td>
<td>24.23</td>
<td>29.00</td>
<td>86.00</td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asian</td>
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<td>33.78</td>
<td>9.38</td>
<td>28.00</td>
<td>56.00</td>
</tr>
<tr>
<td>African American</td>
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<td>45.56</td>
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<td>28.00</td>
<td>112.00</td>
</tr>
<tr>
<td>Hispanic</td>
<td>66</td>
<td>38.36</td>
<td>12.21</td>
<td>28.00</td>
<td>83.00</td>
</tr>
<tr>
<td>Caucasian</td>
<td>404</td>
<td>36.00</td>
<td>10.57</td>
<td>28.00</td>
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<td>28.00</td>
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<td><strong>Sexual Orientation</strong></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Heterosexual</td>
<td>490</td>
<td>36.49</td>
<td>11.69</td>
<td>28.00</td>
<td>112.00</td>
</tr>
<tr>
<td>Homosexual</td>
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<td>28.00</td>
<td>80.00</td>
</tr>
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<td>28.00</td>
<td>79.00</td>
</tr>
<tr>
<td>Bisexual</td>
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<td>44.00</td>
<td>12.62</td>
<td>28.00</td>
<td>73.00</td>
</tr>
<tr>
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<td>19.77</td>
<td>28.00</td>
<td>86.00</td>
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Table 6 (continued)

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<th>SD</th>
<th>Minimum</th>
<th>Maximum</th>
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<td>95.00</td>
</tr>
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<td>$25,000 – $49,999</td>
<td>101</td>
<td>36.36</td>
<td>11.68</td>
<td>28.00</td>
<td>87.00</td>
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<tr>
<td>$50,000 – $79,999</td>
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<td>12.26</td>
<td>28.00</td>
<td>112.00</td>
</tr>
<tr>
<td>$80,000 – $100,000</td>
<td>105</td>
<td>36.87</td>
<td>12.37</td>
<td>28.00</td>
<td>86.00</td>
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<td>35.75</td>
<td>10.76</td>
<td>28.00</td>
<td>83.00</td>
</tr>
</tbody>
</table>

N = 527

Health Outcomes Summary Score Results

Study participants were asked to self-report with regard to their perceived health outcomes. Eighteen survey items addressed overall physical and mental health status. The questions were to be answered according to how the participant has felt in the past 4 weeks. The total possible health outcomes summary score from survey items 41-58, could range from 18 (lowest health risk) to 86 (highest health risk) points. Data for reported health outcomes summary scores according to gender, ethnicity, sexual orientation, and income/SEP are provided in Table 7.

Table 7

Sample Self-Reported Total Health Outcomes Summary Scores

<table>
<thead>
<tr>
<th>Gender</th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>204</td>
<td>34.01</td>
<td>9.96</td>
<td>18.00</td>
<td>67.00</td>
</tr>
<tr>
<td>Female</td>
<td>318</td>
<td>37.11</td>
<td>9.70</td>
<td>18.00</td>
<td>65.00</td>
</tr>
<tr>
<td>Transgender</td>
<td>5</td>
<td>43.60</td>
<td>15.37</td>
<td>23.00</td>
<td>63.00</td>
</tr>
</tbody>
</table>
Table 7 (continued)

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>9</td>
<td>37.33</td>
<td>13.03</td>
<td>23.00</td>
<td>67.00</td>
</tr>
<tr>
<td>African American</td>
<td>26</td>
<td>36.50</td>
<td>10.22</td>
<td>18.00</td>
<td>63.00</td>
</tr>
<tr>
<td>Hispanic</td>
<td>66</td>
<td>35.48</td>
<td>9.12</td>
<td>21.00</td>
<td>58.00</td>
</tr>
<tr>
<td>Caucasian</td>
<td>404</td>
<td>35.81</td>
<td>9.89</td>
<td>18.00</td>
<td>65.00</td>
</tr>
<tr>
<td>Other</td>
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<td>39.13</td>
<td>12.59</td>
<td>23.00</td>
<td>65.00</td>
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<tr>
<td><strong>Sexual Orientation</strong></td>
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</tr>
<tr>
<td>Heterosexual</td>
<td>490</td>
<td>35.38</td>
<td>9.51</td>
<td>18.00</td>
<td>67.00</td>
</tr>
<tr>
<td>Homosexual</td>
<td>8</td>
<td>47.50</td>
<td>12.26</td>
<td>32.00</td>
<td>63.00</td>
</tr>
<tr>
<td>Lesbian</td>
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<td>37.33</td>
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<td>18.00</td>
<td>59.00</td>
</tr>
<tr>
<td>Bisexual</td>
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<td>21.00</td>
<td>65.00</td>
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<td>68.00</td>
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<td>Less than $25,000</td>
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<td>10.33</td>
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<td>67.00</td>
</tr>
<tr>
<td>$25,000 – $49,999</td>
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<td>21.00</td>
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<td>$50,000 – $79,999</td>
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<td>36.07</td>
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<td>61.00</td>
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<tr>
<td>$80,000 – $100,000</td>
<td>105</td>
<td>34.66</td>
<td>9.01</td>
<td>18.00</td>
<td>54.00</td>
</tr>
<tr>
<td>Greater than $100,000</td>
<td>110</td>
<td>34.08</td>
<td>10.65</td>
<td>18.00</td>
<td>63.00</td>
</tr>
</tbody>
</table>

(N = 527)

According to the results for the study population, the minimum summary health outcomes score was 18.00; the maximum summary health outcomes score was 67.00, the mean value was 35.98, with a standard deviation (SD) of 9.98. According to the results, the participants who identified as ‘transgender’ had the highest health outcomes mean value of 43.60, while the males had the lowest health outcomes mean value with 34.01. As expected study participants who identified as homosexual, lesbian, bisexual, and
‘other’ scored higher health outcomes mean values than members of the heterosexual group. Lastly, participants who had reported that they had earned less than $25,000 a year scored the highest health outcomes mean value with 39.28.

**Inferential Statistical Results**

After examining the full sample descriptive analysis data and because of limited amount of responses within the existing sociodemographic variables, three of the sociodemographic variables, sexual orientation, gender, and ethnicity/race were transformed / collapsed into recoded sociodemographic variables. These three recoded variables were: 1) gender variable, was transformed into: ‘Male and Female’ variables. The ‘Transgender’ sub variable was removed from the data set due to a small sample ($n = 5$); 2) sexual orientation variable, was transformed into ‘Heterosexual and ‘Alternative’ variables. The 4 variables, Homosexual, Lesbian, Bisexual and ‘Other’ were collapsed into a new ‘Alternative’ variable; 3) ethnicity variable was transformed into 2 new variables: ‘Non-Minority’ and ‘Minority’ variables. Because of lower Hispanic, Asian, African American and ‘Other’ representation ($n = 123$), the 4 minority groups were collapsed into a ‘Minority’ variable. Caucasians ($n = 404$) were included as the ‘Non-Minority’ group.

**Variations in Self-Reported Perceived Discrimination and Health Status**

In order to analyze the first research question, “is perceived discrimination associated with self-reported psychological and physiological health outcomes among university students?” a Multivariate Analysis of Variance (MANOVA) was used to examine if mean perceived experiences of discrimination (EOD) and health outcomes mean scores were higher across the various groups. The independent variables were:
ethnicity, gender, sexual orientation and income/SEP. The dependent variables were:
self-reported discrimination and health summary scores. Tables 8 and 9 illustrate
participant mean values and standard deviations for both EOD and health summary
scores according to the four modified sociodemographic groups/variables.

Table 8

Means and Standard Deviations for Experiences of Discrimination by the Modified Set of Grouping Variables

<table>
<thead>
<tr>
<th>Grouping Variable</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>204</td>
<td>35.79</td>
<td>11.89</td>
</tr>
<tr>
<td>Female</td>
<td>318</td>
<td>36.67</td>
<td>12.14</td>
</tr>
<tr>
<td>Total</td>
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<td>16.23</td>
</tr>
<tr>
<td>Non-Minority</td>
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<td>10.57</td>
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<tr>
<td>Total</td>
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<td>Heterosexual</td>
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<td>36.43</td>
<td>11.69</td>
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<tr>
<td>Alternative</td>
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<td>45.54</td>
<td>16.24</td>
</tr>
<tr>
<td>Total</td>
<td>527</td>
<td>37.07</td>
<td>12.27</td>
</tr>
<tr>
<td>Income/SEP</td>
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<tr>
<td>Less than $25,000</td>
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<td>39.96</td>
<td>14.00</td>
</tr>
<tr>
<td>$25,000 – $49,999</td>
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<td>11.68</td>
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<td>12.26</td>
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<tr>
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</table>
Table 9

*Means and Standard Deviations for Health Summary Scores by the Modified Set of Grouping Variables*

<table>
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<tr>
<th>Grouping Variable</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
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</thead>
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<td><strong>Gender</strong></td>
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</tr>
<tr>
<td>Male</td>
<td>204</td>
<td>3401</td>
<td>9.95</td>
</tr>
<tr>
<td>Female</td>
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<td>37.11</td>
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<td>9.97</td>
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<tr>
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<td>35.37</td>
<td>9.51</td>
</tr>
<tr>
<td>Alternative</td>
<td>39</td>
<td>43.91</td>
<td>12.43</td>
</tr>
<tr>
<td>Total</td>
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<td>35.97</td>
<td>9.97</td>
</tr>
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<td></td>
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</tr>
<tr>
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</tr>
<tr>
<td>Total</td>
<td>527</td>
<td>35.97</td>
<td>9.97</td>
</tr>
</tbody>
</table>

With regard to sexual orientation, participants who self-reported as ‘alternative’ had the highest mean value for both EOD \( m = 45.54 \) and health outcomes \( m = 43.91 \) summary scores. Females scored higher on both EOD and health outcomes scores with mean values of 37.68 and 37.11. Study participants who self-reported as ‘minority’ had a
higher mean value for both EOD ($m = 40.61$) and health outcomes ($m = 36.49$) summary scores. Lastly, study participants who reported earning less than $25,000 a year scored an EOD mean value of 39.95 and a health outcomes mean value of 39.28 respectively.

After computing the one-way MANOVA and comparing EOD and health outcomes summary scores for all study participants within the 4 sociodemographic groups, the results revealed a significant multivariate main effect for sexual orientation, Wilks’ $\lambda = .980, F (2, 485) = 4.963, p = .007$. In addition, a significant multivariate main effect for gender, Wilks’ $\lambda = .987, F (2, 485) = 3.286, p = .038$ was found. After calculating the one-way MANOVA examining the effect of ethnicity on perceived discrimination and health outcomes summary scores, no significant effect was found, Wilks’ $\lambda = .993, F (2, 485) = 1.768, p = .172$. Lastly, after calculating the one-way MANOVA examining the effect of SEP/income on perceived discrimination and health outcomes summary scores, no significant effect was found, Wilks’ $\lambda = .984, F (8, 970) = 1.002, p = .433$. Table 10 presents perceived discrimination and health outcomes follow up analysis of variance for sociodemographic independent variables.

Table 10

*Perceived Discrimination and Health Outcomes Analysis of Variance of Socioeconomic Independent Variables*

<table>
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<th>Independent Var.</th>
<th>Dependent Var.</th>
<th>Df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>Pr. &gt;f</th>
</tr>
</thead>
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<td>440.17</td>
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<td>1193.14</td>
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<td>&lt;.001</td>
</tr>
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<td>Discrimination Score</td>
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<td>2008.00</td>
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<td>&lt;.001</td>
</tr>
<tr>
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<td>42.138</td>
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<td>.516</td>
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<td>2511.02</td>
<td>2511.02</td>
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<td>&lt;.001</td>
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</tbody>
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Table 10 (continued)

<table>
<thead>
<tr>
<th>Independent Var.</th>
<th>Dependent Var.</th>
<th>Df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>Pr. &gt;f</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income/SEP</td>
<td>Discrimination Score</td>
<td>4</td>
<td>1094.57</td>
<td>273.64</td>
<td>1.83</td>
<td>.122</td>
</tr>
<tr>
<td></td>
<td>Health Score</td>
<td>4</td>
<td>1661.61</td>
<td>415.40</td>
<td>4.276*</td>
<td>.002</td>
</tr>
</tbody>
</table>

*N = 527
* Significant at the .05 Level

The results in Table 10 indicate that by gender, the health outcome mean value was statistically significant ($F = 12.42$, $df = 520$, $p < .001$). Study participants categorized according to ethnicity reported a statistically significant EOD mean value ($F = 13.66$, $df = 525$, $p < .001$). Differences in the EOD ($F = 19.621$, $df = 525$, $p < .001$) and health outcome mean values ($F = 26.44$, $df = 525$, $p < .001$) were statistically significant at $\alpha = .001$ for participants who identified according to sexual orientation. Lastly, participants reporting according to income/SEP, scored a statistically significant health outcome mean value ($F = 4.276$, $df = 522$, $p < .001$).

**Sociodemographic Differences in Perceived Discrimination**

Having determined that there were statistically significant mean differences in EOD and/or health outcomes scores between groups, analyses continued by investigating the link between sociodemographic differences and self-reported perceived discrimination. Data collected addressing the second research question “is ethnicity, gender, sexual orientation, or socioeconomic position associated with exposure to discrimination?” were analyzed using a factorial analysis of variance (ANOVA) design. The researcher performed a $2 \times 2 \times 2 \times 4$ factorial analysis to examine the interaction terms. Because none of the interactions were significant, to increase the power of the tests, and to promote ease of interpretation, 4 separate one-way ANOVA’s were
computed to examine the main effects. Table 11 presents ANOVA results for the four sociodemographic groups/variables.

Table 11

**Perceived Discrimination Analysis of Variance for Socioeconomic Independent Variables**

<table>
<thead>
<tr>
<th>Independent Var.</th>
<th>Source of Variance</th>
<th>Df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>Pr.&gt;f</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Between Groups</td>
<td>1</td>
<td>440.168</td>
<td>440.168</td>
<td>3.033</td>
<td>.082</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>520</td>
<td>75460.991</td>
<td>145.117</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>521</td>
<td>75901.159</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethnicity</td>
<td>Between Groups</td>
<td>1</td>
<td>2008.002</td>
<td>2008.002</td>
<td>13.655*</td>
<td>&lt;.001</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>525</td>
<td>77203.258</td>
<td>147.054</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>526</td>
<td>7921.260</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sexual Orientation</td>
<td>Between Groups</td>
<td>1</td>
<td>2853.793</td>
<td>2853.793</td>
<td>19.621*</td>
<td>&lt;.001</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>525</td>
<td>76537.467</td>
<td>145.443</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>526</td>
<td>79211.260</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income</td>
<td>Between Groups</td>
<td>4</td>
<td>1094.570</td>
<td>273.643</td>
<td>1.829</td>
<td>.122</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>522</td>
<td>78116.690</td>
<td>149.649</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>526</td>
<td>79211.260</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*N = 527
* Significant at the .05 Level

After computing the one-way ANOVA and comparing the total EOD scores for all participants, within the 4 sociodemographic variables, a significant difference was found among the participants self-reporting according to ethnicity. The difference in self-reported discrimination and ethnicity mean value was statistically significant at \( \alpha = .01 \), \((F =13.6, df = 525, p < .01)\). Participants who identified as ‘minority’ scored a mean value of 40.61 while the participants who self-reported as ‘non-minority’ scored a mean value of 35.99. In addition, according to the data, there were statistically significant mean differences between the participants when self-reporting according to sexual orientation
Participants who identified as ‘heterosexual’, scored a mean value of 36.43 while the participants who ‘self-reported’ as ‘Alternative’ scored a mean value of 45.54. No significant difference was found between the other two sociodemographic variables.

**Perceived Discrimination as a Predictor of Self-Reported Health**

Having found that there were statistically significant differences between sociodemographic groups (ethnicity & sexual orientation) and perceived discrimination, further analyses advanced by examining data collected addressing the third research question; “Is perceived discrimination a unique predictor of health outcomes?” To examine this research question, simple regression analyses were used to determine if perceived discrimination was a possible predictor of health outcomes among the study sample. A simple linear regression was calculated to evaluate the prediction of participant’s health outcomes summary scores based on experiences of discrimination summary scores. Table 12 presents the simple regression analysis for discrimination variable predicting student health outcomes.

Table 12
*Summary of Simple Regression Analysis for Discrimination Variable Predicting Student Health Outcome Scores*

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>SE B</th>
<th>β</th>
<th>t</th>
<th>Pr. &gt; t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Discrimination</td>
<td>0.39</td>
<td>0.04</td>
<td>.37</td>
<td>9.21</td>
<td>&lt; .001</td>
</tr>
</tbody>
</table>

As shown in Table 12, a significant regression was calculated predicting participants’ health summary scores based on experiences of discrimination. A significant regression equation was found ($F (1, 525) = 84.77, p < .001$), with $R^2$ of .139. According
to the results, perceived discrimination explains approximately 14% of the variance; meaning that 14% of the variability in the health summary score is accounted for by the discrimination summary score. As frequency or exposure to discrimination increased, the risk of illness or negative impact on health increased.

**Results Overview**

The findings of this study were:

1) There were statistically significant differences ($\alpha = .01$) found between EOD and health outcome summary scores for study participants within the four sociodemographic groups. The difference in EOD ($m = 37.07$) and health ($m = 35.98$) outcomes mean values were statistically significant for participants who identified according to sexual orientation; when participants reported according to gender, the health outcome mean value ($m = 35.90$) was statistically significant; Study participants categorized according to ethnicity reported a statistically significant EOD mean value ($m = 37.07$). Lastly, participants reporting according to income, scored a statistically significant health outcome mean value ($m = 35.98$).

2) After comparing EOD and health outcomes summary scores for all study participants within the 4 sociodemographic groups, the results revealed a significant multivariate main effect for sexual orientation, Wilks’ $\lambda = .980$, $F (2, 485) = 4.963, p = .007$. In addition, a significant multivariate main effect for gender, Wilks’ $\lambda = .987$, $F (2, 485) = 3.286, p = .038$ was found.

3) The difference in the discrimination and ethnicity mean value within the four sociodemographic variables was statistically significant at $\alpha = .01$; There were
statistically significant ($a = .01$) mean values differences among the participants when reporting according to sexual orientation.

4) There was a statistically significant ($a = .01$) association between exposure to discrimination and overall health outcome within the sample, with 14% of the variance explained by exposure to discrimination/unfair treatment.
CHAPTER V

DISCUSSION

Introduction

The goal of the study was to examine the association between perceived discrimination and self-reported health outcomes among a population of university students in Southwest Florida. The sample consisted of 527 students attending fall 2012 classes on the main campus of a university in Southwest Florida. The researcher hypothesized that experiences of perceived discrimination could negatively impact health outcomes; the researcher did find support for this hypothesis within the university sample from five ethnic groups. Even though the majority of the sample was Caucasian (76.7%), when classified by sexual minority (homosexual, lesbian, bi-sexual, & other) group, Caucasian students, as well as the minority students, experienced incidences of discrimination in many university settings and situations. To the researcher’s knowledge, this study is one of the few that has explored the impact of various types of perceived discrimination, other than racial discrimination, on university students. The negative effects of racial/ethnic discrimination on health outcomes has been extensively studied and documented in the existing body of literature (Kelaher et al., 2008; Paradies, 2002; Pieterse & Carter, 2007; Williams, 2005).

The researcher examined variations of self-reported discrimination and health outcomes according to four sociodemographic variables: race/ethnicity, gender, sexual orientation, and socioeconomic position (SEP), defined by parent’s and student’s annual income. Several prior studies (Harrell et al., 2003; Kappen, 2000; Postmes & Branscombe, 2002; Williams et al., 1997) have directly compared the association
between perceived discrimination and self-reported health outcomes across minority groups (African Americans, Asians, Hispanics), but few studies have investigated the association between perceived discrimination and health outcomes across a predominately Caucasian young adult population.

**Implications of Perceived Discrimination on Health Outcomes**

Is perceived discrimination associated with self-reported psychological and physiological health outcomes among university students? In this study the researcher provided evidence that experiences of discrimination (EOD) were significantly associated with self-reported health outcomes among the overall sample \( n = 527 \). According to the results, there was a positive association between perceived discrimination and self-reported negative health outcomes. Specifically, EOD and health outcomes correlations were statistically significant across the self-reported sexual orientation factor. When students self-reported according to gender and annual income, the health outcome mean value was statistically significant. Lastly, when the sample self-identified according to ethnicity, a statistically significant mean value was reported.

Bellmore et al. (2012), Brody et al. (2006), and Fisher et al. (2000) have provided ample evidence that perceived discrimination is associated with both psychological and physiological health problems. The current research in the area of perceived discrimination and the impact on health outcomes support the researcher’s findings (Krieger, 2005; Brondolo et al., 2005; Williams et al., 2003). The results of this study support existing evidence for the continuation of examining the impact of perceived discrimination in accounting for minority group disparities in mental and physical health. The study also adds to other studies (Bennett et al., 2005; Williams 2005) that have
highlighted such an association among ethnic and sexual minority groups in the United States.

Is ethnicity, gender, sexual orientation, or socioeconomic position associated with exposure to discrimination? The researcher determined that ethnic (African Americans & ‘other’) and sexual minority (homosexual, lesbian, bi-sexual, other) groups had the highest experiences of discrimination mean values when compared to their Caucasian, Asian, and heterosexual peers. Several researchers have confirmed the negative impact of racial discrimination on health, specifically within African American communities (Bennett et al., 2005; Brody et al., 2006; Guyll et al., 2001; Williams & Chung, 2003; Williams, 2005). Brondolo et al. (2011) found smaller effects of perceived discrimination on health for Hispanics and Asians than for African Americans. Several researchers (Brondolo et al., 2008; Krieger, 2000; Williams et al., 1997; Williams, 2005) have confirmed that minority groups report higher frequency of racial discrimination than non-minority groups; consistent with this current research, the study minority sample reported higher EOD and health mean values (40.60, 36.48) than Caucasian students (39.99, 35.81). In addition, university students belonging to sexual minority groups scored higher EOD and health mean values (45.54, 43.91) than students identifying as heterosexual (36.43, 35.37). These findings support the research conducted by Chae and Walters (2009) in which the researchers found a similar association between discrimination and health. Chae and Walters (2009) found that perceived experiences of discrimination whether based on gender, sexuality, or race have shown to have negative implications for mental and physical health. According to the researchers, members belonging to a sexual minority group frequently experience homophobia and racism in
mainstream heterosexual contexts. These results and other studies (Diaz et al., 2001; Mays & Cochran, 2001; Meyer, 2003) suggested that race and or ethnicity are not the sole predictors of discriminatory experiences, but other characteristics such as sexual orientation and lifestyle behaviors can be a moderator as well. Other areas that to be explored are the examinations of the negative effects of perceived discrimination on health in other minority groups, in addition to African Americans. Lastly, there are limited studies that have explored the negative effect of perceived discrimination on health in Caucasian or minority groups belonging to specific sexual orientation or ‘alternative’ sub groups (Williams, 2003).

Is perceived discrimination a unique predictor of negative health outcomes? The researcher found that perceived discrimination experiences can predict negative health outcomes. There was a significant association between exposure to discrimination and overall self-reported health outcomes correlations within the sample. There was also a significant positive correlation between the independent variable (perceived discrimination summary score) and the dependent variable (health outcomes summary score). As frequency or exposure to discrimination increased, the risk of illness or negative impact on health increased.

**Study Contributions to the Literature**

An important contribution of the present study is an assessment of how multiple types of discrimination are linked to psychosocial and physiological well-being in a university setting (i.e. classrooms, social situations). Understanding the mechanisms through which perceived discrimination and/or unfair treatment affect a range of health outcomes can permit the development of more targeted diagnostic instruments leading to
interventions. Williams and Mohammed (2009) have highlighted the importance of using measures of perceived discrimination that can accurately and completely assess discrimination, as it is to be experienced by a given group. The lack of accurate assessments or instruments to measure and verify experiences of discrimination continues to be problematic in the area of perceived discrimination research. By utilizing the *Impact of Discrimination on Health* survey, constructed from 6 validated instruments (Brondolo et al., 2005; Cohen & Williamson, 1988; Krieger et al., 2005; Ware et al., 2001; Williams et al., 1997), the researcher had the capability to examine how specific dimensions of perceived discrimination, including ethnicity, gender, sexual orientation, and SEP were related to self-reported health outcomes in a university setting. Discriminatory/unfair treatment survey items addressed instances of: social exclusion, school setting, physical appearance, stigmatization, potential threats, and harassment.

**Limitations**

Perceived discrimination is a complex social construct that requires systematic approaches to reduce experiences of discrimination (Utsey & Payne, 2000). Several limitations of the study should be noted. First, discrimination was assessed in the form of subjective respondent self-report regarding frequency of discriminatory experiences and/or unfair treatment. Exposure to discrimination has to rely on ‘self-report’ which is subjective and frequently may be perceived but not reported; often respondents may find it difficult to distinguish between acute, episodic exposure to discrimination and chronic everyday discrimination. This is often left to the perceived emotional interpretation by the respondent when self-reporting exposure to unfair treatment or discrimination. This method of self-report is susceptible to the potential of measurement errors and opening
the possibility of response biases. Potential response bias is a universal problem in studies involving ‘self-reported’ data (Gee, 2002). Although self-reported health has been widely established as a valid indicator of objective health measures, it is not clear whether the results would be generalized to objective measures of overall health or specific health conditions (Brondolo et al., 2008).

The criticism is frequently raised about the measurement of discrimination. Factors such as: social status, personal history, and geographic location may have impacted how self-reported discrimination was interpreted and measured. Williams (2005) suggested that discrimination is ubiquitous in United States society. The stressfulness of a life experience is determined in part by the meaning or perception it has for the respondent which is importantly linked to that individual’s personal and social history. Thus an individual’s perception and appraisal of a discriminatory life experience is a critical component of the experience and hence, is self-reported. Nonetheless, strategies and tools have been and hopefully will continue to be developed to help improve the measurement of discrimination and stressful life experiences (Cohen et al., 2000). Validity and reliability of the combined and shortened versions of the six instruments (i.e. William’s Everyday and Major Experiences of Discrimination Scales, 1997) which were used to construct the Impact of Discrimination on Health instrument may be another study limitation.

Because this research study was correlational, the data are cross-sectional and provide no basis for causal directionality or relationships among perceived discrimination and self-reported health. At the same time, the findings were consistent with previous research in which social conditions were found to be important determinants of variations
in health (Williams, 2005). However, the results and implications of this study should be verified with longitudinal analysis.

Lastly, the researcher employed convenience sampling. Consequently the researcher cannot determine if between-group differences in levels of experience of discrimination or in the relationship of discrimination to health could be generalized beyond a sample that is dissimilar to this population of Southwest university students. It would be beneficial in the future to replicate these findings in a larger lower income diverse community based sample to demonstrate the generalizability of these effects.

Despite these limitations, this study advances understanding of the effects of perceived discrimination on health by demonstrating that various types of discrimination are associated with self-reported poor health within racial, sexual minority, and lower socioeconomic groups. Recognizing and treating mental and physical health concerns in all sociodemographic groups needs to be explored. Addressing perceived discrimination and its impact on health, however subtle it may be, can help to improve the overall health and well-being of a university culture. It is hoped that the instrument (Impact of Discrimination on Health) utilized within this study may be implemented and validated in a future perceived discrimination research study.

**Future Research Recommendations**

Despite substantial supportive literature, three significant gaps remain in the understanding of the influence of perceived discrimination on self-reported health. First, according to Brondolo et al., (2011) and the researcher concurs, the extent to which the effects of perceived discrimination on self-reported health generalized across ethnic groups is not well understood. The variations in health effects of perceived discrimination
might be expected given socioeconomic and sociocultural differences among racial and ethnic groups. According to Williams and Mohammed (2009) the context in which discrimination is experienced for a given group is likely to be influenced by the forces driving immigration and affecting acculturation. For example, many African Americans are the descendants of involuntary immigrants brought to the United States as slaves. The findings from this study support the belief that African Americans remain the most stigmatized racial group in the United States and experience considerable residential segregation (Williams & Mohammed, 2009). Such living conditions can have an impact on health as communities with high concentrations of African American individuals tend to be more crowded, located in lower income areas, are surrounded by poorer housing, and may have limited access to resources such as health care, which could help to support healthier lifestyles and behaviors (Brondolo et al., 2011). In contrast, many Hispanic and Asian Americans are voluntary immigrants or descendants of voluntary immigrants. Factors associated with the choice to migrate, such as socioeconomic resources, sufficient emotional, and physical health to meet the challenges of migration, may serve as “unmeasured buffers of the effects of a social stressor, such as discrimination on perceived health” (Brondolo et al., 2011, p. 15). Some individuals particularly those Latinos from Puerto Rico, have the ability to return to a place in which they form the majority and this may offset the burden of discrimination in the United States (Brondolo et al., 2011). Lastly, there are significant differences in the types of stereotypical beliefs held about African Americans, Hispanic, and Asian Americans; this may translate into subtle differences in the discrimination experienced by members of these particular groups (Alba, Rumbaut & Marotz, 2005). The researcher believes that future studies
should examine the types and contexts of perceived discrimination; which can affect the psychological well-being of minority youth and adolescents (Seaton & Yip, 2009). Although one might expect sociodemographic differences across various groups in the health effects of discrimination for the reason described. However the existence of such sociodemographic differences has not been well studied.

Second, researchers do not have a full understanding of various perceived discrimination experiences that are most clearly associated with negative health outcomes. The type of discrimination, the frequency of discriminatory incidents, the situation or context in which it occurs, and the degree to which it can impact health are all factors that can influence how one reacts to perceived discrimination. For example according to Brondolo et al. (2008), social exclusion of any type can lead to depression and/or isolation. In contrast, a physical threat and harassment may elicit anxiety or anger, producing a fight or flight response. Brondolo (2008) has demonstrated different types of race related discrimination associated with different patterns of coping responses and with different indices of physical and mental health. Brondolo (2008) suggested that different types of discrimination may produce different psychophysiological responses, which may ultimately result in different overall effects on health. This area of study warrants further research due to the fact that in the broader literature, the potential negative health effects of perceived discrimination have not been well documented. One reason maybe in part because perceived discrimination has typically been treated as a single-dimensional construct. According to Karlsen and Nazroo (2002), the majority of the research which has focused on differential effects associated with specific dimensions of discrimination, has been done outside the United States; so it is unknown which
particular types of discrimination are associated with health among specific minority groups in the United States.

Third, the psychophysiological mechanisms through which perceived discrimination impacts self-reported health are not fully understood. There is substantial evidence in the literature to suggest that perceived discrimination is related to symptoms of depression and anxiety (Finch et al., 2001; Mays et al., 2007; Schulz et al., 2009), both of which may have negative implications for physical health (McGrady et al., 2009). The relationship between perceived discrimination and health is sometimes reduced or eliminated after controlling for measures of psychological distress. Therefore, it is possible that higher rates of perceived discrimination leads to decrements in self-reported physical health by increasing depression, anxiety, and psychophysiological changes that may accompany such psychological distress. Clark et al. (2004) and Krieger et al. (2005) suggested that the relationship between perceived discrimination and other indices of health, as well as factors that diminish the perceived discrimination-health relationship, warrant additional in-depth research.

Conclusion

Clarity, compassion, and understanding remain an elusive goal in regard to the patterns of perceived discrimination and racial disparities in health for each of America’s ethnic minority groups. The United States had a long history of collecting and reporting health statistics by race and/or ethnicity (Williams et al., 2003). Not only do racial health disparities exist but there is an urgent need to identify health disparities according to gender, SEP, and sexual orientation as well. Brondolo et al (2011) theorized that race, gender, SEP, and sexual orientation-based discrimination were associated with poor self-
reported health for many minorities. Furthermore, these associations were due at least in part to the impact of social exclusion and threat on psychological functioning. The similar effect of perceived discrimination observed across diverse ethnic groups suggested that there was a particularly toxic element associated with race-related exclusion and threat that can ultimately degrade health.

Many individuals who migrate (legally or illegally) into countries may be victims of discrimination; some may lack access to health/medical care, due to various reasons (i.e. lack of transportation, fear, money, etc.). One consequence of limited or lack of access to health care may leave these individuals undiagnosed with psychological or physiological health problems. Brondolo (2011) and other researchers in the field (Chae & Walters, 2009; Krieger, 2000; Williams, 2005; Gee, 2002) have emphasized the importance of recognizing and treating mental and physical health concerns in various ethnic populations. Addressing early symptoms of depression, stress, and other serious mental health disorders may help offset some of the effects of racial and/or ethnic discrimination on health. It is hoped that future research will develop and disseminate information and strategies that may be helpful in educational, community, or clinical settings. This information may help to assess efficiently and appropriately, the overall mental and/or physical health burden imposed on any individual, not just an individual of color. Furthermore, it will be essential to determine whether different dimensions of perceived discrimination can provoke different patterns of psychophysiological or coping responses. These coping responses will need further investigation to see how they influence overall health outcomes. Understanding the mechanisms in which perceived discrimination and/or unfair treatment affect a range of health outcomes can permit the
development of more targeted and effective interventions for all resulting in improved health outcomes.
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Impact of Discrimination on Health Survey Items
Survey Items Addressing Frequency of Discrimination

This section is intended to sample your day to day experiences in which you may have been treated unfairly due to race, ethnicity, color, physical appearance, socioeconomic position (SEP), gender, religion, or sexual orientation at this university. Reflect upon your experiences as an undergraduate university student. Freshman, please answer regarding your current educational experiences. Below you will find experiences that may have happened to you because of unfair treatment. Please fill in the letter on the answer sheet (A to E) that indicates the frequency of these experiences in your day to day life as a university student.

Possible responses for this section:
A) = Never    B) = Once     C) = Two Times    D) = Three times    E) = Four or more times

“Because of your race, ethnicity, color, physical appearance, socioeconomic position (SEP), gender, or sexual orientation have …………”

you been treated unfairly by teachers, faculty, or other staff here at school?
others expressed to you that you couldn’t do things or handle a job?
others threatened to hurt you (ex: said they would hit you)?
people acted as if they think you are not smart?
people acted as if they are afraid of you?
others hinted that you are dishonest or can’t be trusted?
others actually hurt you or tried to hurt you?
others called you names or insulted you?
others threatened to damage your property?
others actually damaged your property?
others made you feel like an outsider who doesn’t fit in?
your classmates treated you with less respect than others?
faculty/staff at the university made you feel like an outsider?
others ignored you or not paid attention to you?
others hinted that you don’t practice proper hygiene?
teachers, faculty or staff members treated you with less courtesy than other students?
campus police or security officers been unfair to you?
others hinted that you are lazy?

**Survey Items Addressing Situational Discrimination Experiences**

This section is intended to explore experiences of unfair treatment or having ever been made to feel inferior in any of the **following situations** because of your race, ethnicity, color, physical appearance, socioeconomic status (SES), gender, or sexual orientation. Reflect upon your experiences as a university student. Please fill in 1 letter on the answer sheet (A to E) that indicates the frequency of these experiences in your day to day life.

**Possible responses for this section:**

A) = Never   B) = Once   C) = Two Times   D) = Three times   E) = Four or more times

At the university?

Getting hired or getting a job?

At work?

Getting housing?

Getting medical care?

Getting service in a university store, office, or restaurant?

On campus in a public setting (i.e. bookstore, student center)?

From campus police?

**Note:** Survey items modified from Krieger et al. (2005) *Experiences of Discrimination Scale.*
Survey Items Addressing Impact of Discrimination Experiences

This section will assess how exposure to discrimination has impacted your life. Please fill in the letter on the answer sheet (A to D) that indicates how these experiences have affected your life.

This section will ask you, a university student, how you would typically respond to unfair treatment. Please fill in the letter that indicates how you would respond to these experiences in your day to day life.

Possible responses for this section:

A) = Not at all    B) = A little    C) = Some    D) = A lot

Overall, how much has discrimination interfered with you having a full and productive life?

Overall, how much harder has your life been because of discrimination?

Note: Survey items modified from Williams et al. (1997) *Major Experiences of Discrimination Scale.*
Appendix B
IRB Study Consent Form
Consent Form

Study Title: AN ANALYSIS OF THE RELATIONSHIP BETWEEN SELF-REPORTED DISCRIMINATION AND HEALTH OUTCOMES AMONG UNIVERSITY STUDENTS IN SOUTHWEST FLORIDA

Principal Researcher: Ms. Renee L. McFarland, Ed. S.
Dr. Cecil Carter, Faculty Advisor

Introduction
You are being asked to participate in a research project conducted through Florida Gulf Coast University. This research is being conducted by a doctoral student as part of the requirement for the doctoral degree here at Florida Gulf Coast University. In order to participate in the study the University requires that you give your approval by signing both copies of the provided consent form. The researcher will explain to you the purpose of the project in detail, the procedures that will be used, the expected time the study will take, and any benefits or risks to you. The researcher will be examining the relationship between self-reported discrimination and self-reported health status among a Southwest Florida university student population. If you are 18 years or older and choose to join the study, please sign the last page of this form in front of the person who told you about the study. You will get a copy of this form to keep. If you choose to join the study, you can leave it at any time with no penalty. Refusal to join the study will not affect any future services you may be eligible to receive from the University. Anyone who chooses to participate in this study is free to withdraw at any time with no penalty or loss of benefits to which they are entitled. The instructor can only answer questions regarding the completion of the survey.

Nature and Purpose of Study
The researcher is asking you to take part in the study because you will be helping to examine the relationship between self-reported discrimination and health outcomes on a university campus. If you join the study, you will be asked to complete questionnaire during your class time. This will take approximately 25 minutes. The researcher does have your instructor’s permission for you to complete this survey. Your information will be kept confidential and is anonymous (no name required on the answer sheet). The data will be stored in a secured, password, protected database, for three years, available to those designated for the study and data analysis.

Risk(s) of Participating
There is minimal risk involved with this study. You may feel upset thinking about personal information related to how you experience discrimination on campus. These risks are similar to those you may experience when discussing personal information with others. If you feel upset from this experience, you can contact Counseling and Health Services located in Holmes Hall-Room 239.

(239) 590-7800 TTY: 590-1450 FAX: (239) 590-7801. http://coe.fgcu.edu
10501 FGCU Boulevard South - Fort Myers, Florida 33965-6165

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Benefit(s) of Participating
Participating in this study might benefit you by providing insight into the prevalence of discrimination experiences among a Southwest Florida university population; in addition, you may gather insight into the chronic experiences of discrimination that can place everyone in the highest risk for mental health disparities and unhealthy behaviors.

Confidentiality of Information
If you join the study, we will take the following steps to keep your information confidential and secure. We will not release information about you unless you authorize us to do so or unless we are required to do so by law. If the results of this study are published or presented, no information will be included that would make it possible to identify you as a study participant.

Payment/Cost to Participate
You will not be paid to take part in this study. There is no cost to you or your insurance company if you join the study.

Emergency Contact Information
I do not foresee any medical problems from participating in this study. However, if you experience any research related injury, please contact Dr. Cecil Carter, faculty sponsor, College of Education at: 239-590-7794 or email: ccarter@fgcu.edu. If you have any questions about this study, you may contact Renee McFarland, Principal Investigator at: 239-590-7502 or email: rmfarla@fgcu.edu. If you have any questions about your rights as a subject/participant in this research, or if you feel you have been placed at risk, you can contact the Chair of the Human Subjects Institutional Review Board through Sandra Terranova, Office of Research and Sponsored Programs at: 239-590-7522.

Signature
I am 18 years of age or older and I have read and I understand the consent form. My signature below indicates that I am volunteering to participate in the project. I understand that if I become uncomfortable with the project, I am free to stop my participation. I also understand that it is not possible to identify all potential risks in an experimental procedure and I believe that reasonable steps have been taken to minimize both the known and potential but unknown risks.

Signature of Study Participant ___________________________ Date ____________

Signature of Witness ___________________________ Date ____________

Approved by the IRB:
Date: 09/19
Chair: [Signature]