

VALIDATION OF THE MINORITY STATUS STRESS MODEL: DOES SOCIAL
SUPPORT MODERATE THE INFLUENCES OF PERCEIVED DISCRIMINATION
EFFECTS ON SELF-RATED HEALTH?

Presented to the Graduate Council of
Texas State University–San Marcos
in Partial Fulfillment
of the Requirements

for the degree

Master of ARTS

by

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San Marcos, Texas
May 2013

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ACKNOWLEDGEMENTS

Thank you Dr. Etherton for giving me a second chance to complete this thesis. His patience, understanding, and willingness to look beyond mistakes have made this process possible. I would also like to thank him for the opportunity to work with him on other research projects, which has continued to foster my passion for research. Without a doubt I am in his debt. I also must express my thankful appreciation to Dr. Oberle. You have been a constant source of encouragement and have offered limitless guidance throughout my graduate experience. I believe that you and Dr. Etherton were instrumental in my acceptance into a doctoral program. Dr. Mayberry, thank you for your support throughout this process and for allowing me the opportunity to consume so much of your time.

To Veronic Carpio, Erin Timberlake, Jessenia Garcia, and Angela Johnson the best research assistants I have ever worked alongside. Your efforts were tireless and I would not have been able to collect the rich and accurate data for this project.

Finally, I would like to thank the residents of Dixon County: Duncan Dickson, Brian Tapscott, and Claire Allen. Your friendship means the world to me, and I will miss the discussions, which consumed so many of our productive working hours. Finally, I would like to thank Dixon County laboratory co-founders Duncan and Brian.

This manuscript was submitted on April 8, 2013.

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ABSTRACT

VALIDATION OF THE MINORITY STATUS STRESS MODEL: DOES SOCIAL SUPPORT MODERATE THE INFLUENCES OF PERCEIVED DISCRIMINATION EFFECTS ON SELF-RATED HEALTH?

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May 2013

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The primary purpose the current study was to validate the minority status stress model as proposed by Flores et al., (2008), and determine if perceptions of discrimination influence Hispanic mental and physical health outcomes. Results indicated that women reported significantly more perceived stress than men, and men reported significantly more consumption of alcohol. However, current data did not support Flores et al., (2008) findings. Regression analysis found that perceived stress was a greater predictor of depression above that of perceived discrimination. Furthermore, Perceived discrimination did not predict self-rated health, and social support did not moderate the relationship between perceived discrimination and self-rated health.

CHAPTER I

INTRODUCTION

Conceptualizations of Discrimination

Racial discrimination has most commonly been expressed in American history through social, economic, and political initiatives, which have acted to stigmatize, segregate, and disadvantage ethnic groups (Dovidio, Gluszek, Dittmann, & Lagunes, 2010). The outcomes of these approaches has been clearly documented within the African Americans experience research literature, has having been expressed in legally sanctioned slavery and Jim Crow laws of segregation (Fisher, Wallace, Fenton, 2000). Because of this expansive account, researchers have sought to describe the ways in which acts of racial and ethnic discrimination are expressed and perceived. Some articles have described racial discrimination as “behavioral manifestations from perceived or actual encounters with negative attitudes” and “unfair treatment” directed at individuals within the non-dominant cultural group (Banks, Kohn-Wood, & Spencer, 2006; Williams, Spencer, & Jackson, 1999) from the dominant racial group. The prior conceptualization of act of discrimination captures the outcome of racially motivated events, but a more comprehensive explanation of racism is need to include the, “beliefs, attitudes, arrangements, and acts” (Clark Anderson, Clark, & Williams, 1999). The conceptualization proposed by Clark et al., (1999) “attitudinal or behavioral” manifestations are more accurate when defining discriminatory acts as measurable

constructs. More specifically, racial discrimination based on attitudinal expressions, from the dominant culture, has been shown to represent more actually the perspectives, which reduce individuals or groups to the level of phenotypic differences (Clark et al., 1999). Additionally, Clark et al., (1999) suggests that behavioral expression of racial discrimination moves beyond the outward attitudinal expression, and is expressed through the determent of equal opportunity in social, occupationally, and political at the individual and/or institutional level. Parallel to African Americans, Hispanics¹ encounters have with racial discrimination has been associated with attitudinal and behavioral expression of discrimination, which occur systematically to hinder employment and housing opportunities (e.g., Schuman, Steeh, Bobo, & Krysan, 1997), but unique discrimination based on immigration status is where these two communities experiences diverge, which may suggest racial discrimination associated with Hispanics may have a unique component compared to other ethnic groups.

Despite the differences between these ethnic groups, discriminatory practices have been shown to hinder education attainment, depress net income earning potential, (French & Chavez, 2010; Stolzenberg, 1990) cultivate racial mistrust, diminish culturally identities and instill stereotype threat for minority adolescents (Bowman & Howard, 1985). Stereotypes and prejudices toward Hispanics may be correlated with larger representation of Hispanics in U.S. demographic numbers; the roots of racial discrimination are hypothesized to be from associated with the effects of the governmental intentioned scheme the *Bracero Program* (Snodgrass, 2011).

¹ Considering the diverse countries and cultures that encompass the Hispanic world, we have decided to use the term *Hispanic* when referring to individuals who identify themselves as Hispanic and Latina/o persons, and trace their familial origins to Mexico, Central/South America, and Spain.

The Bracero, or “strong-man,” scheme was a guest workers program enacted in 1942 to meet the agricultural labor demands of the Second World War. The program sponsored approximately 4.5 million Mexican guest workers from 1942 till 1964, until the conclusion of the program. Many of the Bracero workers were granted permanent legal status, while others workers disregarded the residency process to meet the labor demands growing in major metropolitan cities. With the influx of unauthorized immigrants into the labor markets created a practice and preference for hiring unauthorized immigrants due willingness to work lower wages (Snodgrass, 2011). The losses of jobs to unauthorized immigrants form legal citizens lead to perception that unauthorized Hispanics were largely responsible to the loss of higher wages. In response to these perceptions *Operation Wetback* was in acted in 1954 to deal with the issues associated with Mexican guest workers. The operation saw the deliberate deportation of over 1 million Mexicans guest workers despite the success of the guest worker program, and contribution of Hispanics to the economic success of the U.S. (Gutierrez, 1995).

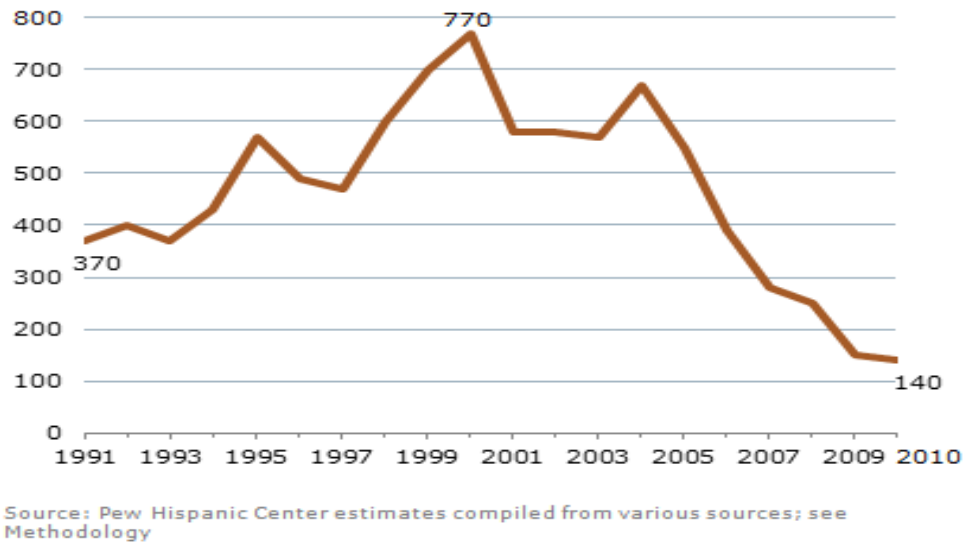


Fig. 1. Annual immigration from Mexico to the U.S. 1991-2010. The data indicates that trends in migration have begun to slow during the previous five years. Pew Hispanic Center, 2012.

Even with large deportations of Hispanic workers, perceptions from WHN remained largely negative; imbedding the assumptions that Hispanic workers were principally unauthorized illegals and thus responsible for job losses and economic success for WHN. This prevailing belief scheme remains salient in current U.S. political dialogue when speaking about the status of the U.S. economy and immigration reform. This is most notable in anti-immigration legislation such as, Senate Bill 1070 in Arizona, and House Bill 56 of Alabama, which empower state authorities to inspect the immigration status of individuals through the subjective assessment of skin tone/color. As of 2012 Alabama census data suggests that the Hispanic population is around 4% (United States Census Bureau, 2013), which is similar to Louisiana's Hispanic population. Other states, which share a border with Mexico, do not have bills similar to Alabama. For example, Texas has a Hispanic population surpassing 37% (United States Census Bureau, 2013) with 1.6 million undocumented Hispanic workers

(Pew Hispanic Center, 2013), but does not have immigration bills similar to Alabama. Designing laws to curb statistically small percentages of Alabama's Hispanic population begs the question: are these laws designed to address economic concerns or do they represent a covert approach to subjugate Hispanics?

The intended outcomes of more stringent immigration laws are to deter unauthorized workers from seeking employment with the U.S, and leading to a reduction in jobs for skilled American workers. Despite stricter immigration laws there little evidence to suggest that such legislation spurs job creation; particularly in sectors that have historically and predominately employed Hispanics: such as agricultural, construction, and non-institutional services jobs (U.S. Bureau of Labor Statistics, 2012). For example, recent economic data provides contrary evidence to the perceptions that Hispanic immigration or undocumented workers negatively impact economic redevelopment. For example, Hispanic labor constituted of 50% of the construction business in Texas, contributing to a 16% increase in new housing permits, with undocumented Hispanic workers generating 17.7 billion dollars directly to the Texas economy, and 75% of undocumented workers paid income taxes, which directly supports social services programs, for which they cannot access (Workers Defense Project, 2013; Pew Hispanic Center; Texas Comptroller's Office 2013). Furthermore, data examined by the Pew Hispanic Center (Passel, Cohen, & Gonzales-Barrera, 2012) from the U.S. Census Bureaus' Current Population Survey and Mexico's National Survey of Employment and Occupation, demonstrated that Mexican immigration has actually dropped by 40% from 2005 to 2010 (see Figure 1). These data provide evidence that immigration is on the decline, but perceptions persist that unauthorized immigrants are

harming economic redevelopment through the redistribution of potential income away from unskilled American workers (Borjas 2006; see also Lynch & Woodyard, 2006) despite the enormous economic contributions reported by the Pew Hispanic Center (2013).

Demographical Shifts

Recent demographic data indicates that the United States is transforming into an increasingly diverse society with a growing representation of Hispanics (U.S. Bureau of Census, 2010) at various facets of community and growing political influences. As of 2011, Hispanics constituted the largest ethnic or racial group (16.7% of the nation's total population) amongst the nation's 40 million immigrants (U.S. Bureau of Census, 2011), with Mexicans representing 32 million of Hispanics within the U.S. (Pew Hispanic Center, 2012). Data from the Pew Hispanic Center (2012) also indicated that Hispanics make up the youngest minority group - median age of 27 years for new immigrants and 18 years for American born-Hispanics – when compared to white non-Hispanics with a median age around 42 years. As Hispanics age they will constitute a 40% increase of the eligible electorate by the year 2030, which suggests that Hispanics will have a larger role in shaping the political and cultural landscape of the U.S.

Notwithstanding the progress of the previous decades in civil rights, there still remains and persists institutionalized discrimination against ethnic communities within the U.S. Large bodies of research, both from community samples and laboratory experiments have provided evidence examining the influences and pathways which racial discrimination negatively influences psychological, physical wellbeing among ethnic minorities (Paradies, 2006). While differences exist between the methodology of

laboratory and community studies the data still provides strong correlations and predictive pathways which are essential in understanding the connections between racial discrimination and psychological and physical outcomes. Strong correlational data has found associations between prolonged exposure to racial discrimination and health. Most notably with health outcomes being related with increased hypertension, engagement in substance use and abuse, and greater potential for developing health risk factors, which contribute to chronic disease (Pascoe & Smart, 2009). An expanded discussion of perceived racial discrimination pathways will be presented in Chapter II.

While the relationship between exposure to racial discrimination and health has been established well within the research literature, it is easy to assume these correlations and pathways apply to multiple ethnic groups, with similar outcomes. This has led the application of non-Hispanic Black (NHB) models of racial discrimination to be applied Hispanic models of health within the research literature. For example, Dovidio et al. (2010) analysis of social psychology journals found that 61% of articles examining discrimination focused on NHB, compared to just 7% of articles with Hispanics as the principal culture of interest. The small representation of empirical research on the relationship of discrimination and Hispanics suggest that current models of discrimination may be based on the established models of White non-Hispanic (WNH) belief structure toward NHB. While minority groups share common aspects of discrimination, the current WNH and NHB model neglects the diverse pathways in which differing Hispanic groups experience and internalize discrimination. Additionally, Hispanics encounters with racial discrimination are largely associated with economic concerns associated with the perception of unauthorized immigration, whilst African

American experiences racial discrimination are largely rooted historical contextual factor which have shaped negative views of NHBs among WNH (Dovidio, John, Gluszek, Dittmann, & Lagunes, 2010). These differences indicate that discrimination is an important area of investigation as stigmatized groups are subjected to differential treatment based on minority status (Flores et al., 2008). Given that Hispanics constitute the largest minority group, 50.7 million (16.7%) of the population compared to HWB at 12.3% of the population, it appears necessary to construct and validate models of discrimination and health outcomes, which address the growing need of the expanding community.

CHAPTER II

LITERATURE REVIEW

Perceptions of Racial Discrimination

Although demographical changes have led to advancements in the integration process of Hispanics within American society, “racialistice” practices remain prevalent and are seen to be (Fisher, Wallace & Fenton, 2000) largely in response to the growing population and influence of the Hispanic community in American political and cultural narrative. In particular, Hispanics still struggle to balance the differential power structure, which places them within subjugated positions within the American “stratification system” (Harrison, Wilson, Pine, Chang, & Buriel, 1990). It is still evident that Hispanics routinely experience discrimination (Davis, 2000) through avenues that encourage exploitation, segregation, (Marín & Marín, 1991) unequal educational opportunities, unfair housing practices, unequal pay, lower promotion rates and protections within the labor markets (Pavaloko, Mossakowski, & Hamilton, 2003; Smaje, 2000) when compared against WNH.

The evidence for institutionalized discrimination has been documented within multiple empirical samples, establishing the methods in which ethnic discrimination occurs at multiple levels of society, but it remains difficult to determine if discriminatory acts are based on ethnic status or rather individuals perceptions of ethnic discrimination from the actions of others from within the dominate culture. Currently, survey research

on discrimination has been based on *post-hoc* interpretations of self-reports (Pascoe et al., 2009) making it difficult to determine if the discriminatory acts are valid or perceived. For example, correlational data obtained from survey data have produced mixed and inconsistent results (Harrell, Hall, & Taliaferro, 2003), and some data has indicated a reverse relationship when examining positive health outcomes against self-report encounters with discrimination amongst African Americans (Jackson, Brown, Williams, Torres, Sellers, & Brown, 1996). Additionally, external factors may influence individuals' response set, thus influencing their capacity to recollect discriminatory encounters precisely (Harrell, et al., 2003) enough for directional analysis or predictive modeling. The inconsistent findings within the research literature may be associated with the level of acculturation or the desire to embrace mainstream orientations from the respondents. With these limitations in mind, the current study does control for acculturation and cultural orientations to address the nature of self-report discrimination confounding outcomes.

Notwithstanding the limitations of self-report data on perceived discrimination, this area of research is important because the perception of discrimination appears to be as important as, even when the act in-of-its self was not overtly or covertly meant in a discriminatory manner (Williams, Yu, Jackson, & Anderson, 1997). Specially, Sigelman and Welch (1991) found that 50% of African American respondents endorsed perceived conditions, such as: "substandard housing, lack of skilled labor and managerial jobs, and lower wages," as overt racial discrimination. Harrell and colleagues (2003) research suggests that the determining factor whether real or perceived has consequences on cognitive interpretation and internalization of racially motivated acts. For example,

internalized perceived racial discrimination may contribute to insecurity, inferior academic outcomes, depressive symptomology, substance use/abuse (Fiscella & Williams, 2004) and non-participation in health seeking behaviors. Moreover, individuals' stress response has been shown to be in a higher state of sensitive activation when perceptions of racial discrimination are measured against objective strains (Clark et al., 199), although some care must be taken when interpreting these data, as some evidence does suggest that individuals high on neuroticism may embellish or overestimate on reports of discrimination (CITE).

Interrelation of Racial Identity, Socioeconomic Status, and Health Outcomes

Perceived discrimination experiences have been characterized as consistent source of general and chronic stress (Williams et al., 1999; Williams, Yu, Jackson, & Anderson, 1997) leading to the diminishing of the “cultural fabric” of subjugated populations (Harrell, et al., 2003), which in turn may diminish an individual's ethnic identity and self-efficacy (Chavez et al., 1999). Research within Mexican American communities have found that some parents take a preemptive attitude against ethnic discrimination by socializing and educating their children on the positive aspects of racial pride, as a means of developing a proactive coping styles to overcome perceived ethnic stereotypes (Bowman and Howard, 1985; Demo and Hughes, 1990) and discriminatory practices (Knight, Bernal, Garza, Cota, & Ocampo, 1993). For example, Bowman, et al., (1985) found that teenagers who were socialized to respond proactively to racism were found to have a superior sense of personal efficacy and self-esteem compared to those not socialized (Phinney and Chavira, 1995). These findings are significant insofar that self-efficacy is closely linked to racial identity; which is typically explained by the social

construct “group or collective identity,” which is based on perceptions of a shared common heritage (Helms, 1993, p. 3), culture and communal activities (Chavez et al., 1999). When non-dominant group members (e.g., Hispanics) perceive prejudicial or negative stereotyping treatment from dominant groups members (e.g., WNH) may threaten the non-dominant groups’ self-concept and efficacy (Chavez et al., 1999) in a negative direction.

The development of racial or ethnic identity based on cultural and historical perspectives are critical accepts in the development of a collective identity for minorities living in a non-dominant culture. The examination of the individuals’ minority status has been suggested to contribute to higher perceived experiences of discrimination and greater endorsement of life stressors on measures of perceived general stress (Flores et al., 2008). The impact discrimination has on chronic perceptions of racism have indicated that individuals who report higher levels of perceived discriminatory acts are more likely to endorse feelings of negative self-efficacy (Hughes, & Demo, 1989). For example, Roehling and colleagues (Roehling et al., 2010) report higher rates of ethnic identity exploration and negative self-efficacy among first generation Hispanic adolescents than their non-Hispanic counterparts, after watching the 2006 immigration debates. Theses finding support and are consistent with Phinney’s theory of ethnic identity development, which predicts that discriminatory events initiate ethnic identity exploration and displace the individual from their “old worldview” thus making them sensitive to a new interpretation of their perceived identity (Chavez & Guido-DiBrito, 1999). Consequently, students in Roehling et al., (2010) study reported higher levels of general and acculturative stress after being exposed to the context of the immigration

debates. The results indicate that observing racially charged events may lead individuals to begin to distinguish themselves on the bases of divergent ethnic beliefs and attitudes from that of the majority. Roehling, et al. (2010) findings also support previous research on ethnic identity distancing/confusion by providing data on Hispanic adolescents whom encountered negative reactions regarding their racial status from their non-Hispanic peers. These Hispanic students reported greater ethnic identity confusion, after being confronted with negative racial reactions. The interplay between perceived racial discrimination and individuals' wellbeing (i.e., identity development, physiological and psychological outcomes) are associated by contextual factors such as socioeconomic status, behavioral factors, acculturation, and coping mechanisms (Clark et al., 1999).

Socioeconomic Status: Determinant of Health Status

Socioeconomic status (SES) has been shown in past research to be a positively correlate with disparities in current and past health status, whether being measured by aggregate income, educational attainment, or occupational field (Fiscella & Williams, 2004). Furthermore, SES appears to influence health outcomes, morbidity, and mortality across varying measures of health, but appears to be most influential amongst individuals in lower SES strata (Fiscella et al., 2004). For example, Clark et al., (1999) literature review provides evidence that African Americans and Hispanics (Pascoe & Smart-Richman, 2009) of lower SES reported more racial/ethnic discrimination on measures that addressed overt racism, rather than more subtle measures addressing institutional racism (i.e., occupational advancement or access to better jobs).

In relation to Hispanics SES, Franzini & Fernandez-Esquer (2004) found that immigrants are drawn to the U.S. by the perception of occupational achievement or

mobility. On average the results indicated that immigrants did realize their occupational aspirations, as overtime newly immigrated Hispanics income was comparable to U.S. born Hispanics. However, the income inequality between WNH and Hispanics is 15 to 1, with WHN earning on average \$110,729 compared to Hispanics \$7,424 median household net worth (U.S. Census Bureau, 2013). The disparity Hispanics have with income has been directly related to lower health outcomes due in large part to the constraints of living in segregated area, which perpetuates more poverty, lower educational opportunities, and limited access to health care, thus increasing health disparities (William & Collins, 2001). The disparity with health amongst lower SES groups has far reaching effects, transverses the lifespan (Fiscella et al., 2004). The risk factors associated with lower SES and discrimination can strongly influence risk factors for fetal health that are strongly linked with the mothers' health. For example, lack of economic and health resources, as well as prolonged exposure to racial/ethnic discrimination, can lead to adverse birth outcomes due to inadequate prenatal care (Fiscella et al., 2004), lower birth weights and increased infant mortality (Chen, Matthews, & Boyce, 2002).

The effects of lower SES extended into adulthood, where the impact on health is more clearly expressed. For example, Wong, Shapiro, Boscardin, and Ettner (2002), literature review of lower SES children indicated that not having parents who completed high school had poorer health outcomes that carried on into adulthood. These children were found to be six times more likely to endorse poor or fair health, and had life expectancies that were six years shorter, than higher SES children. Additionally, these lower SES individuals were found to have higher incidences of premature morbidity and

disability, including earlier onset of hypertension, type II diabetes, cardiovascular complications and disease, obesity, and clinical depression (Everson, Maty, Lynch, & Kaplan, 2002).

The associations between SES, ethnic status, and current health have strong intercorrelation relationship, which indicate a positive interaction between lower SES and poor psychological and physiology health status among minority groups. For example, lower SES Mexican-origin adults generally have a lower capacity to obtain safer and stable occupation, thus requiring the need to fill more labor intensive, physically challenging (Finch et al., 2001) and required to work a series of jobs, which may lead to declines in health (De-Anda, 1999). The acceptances of jobs were individuals feel discriminated against or encounter lower wages and more dangerous work assignments may lead to a feeling of underemployment/unvalued. Finch and colleagues (2001) data indicated that these feelings lead Hispanics to report greater rates of depression, and lower immunity. Vega, Kology, and Valle (1987; cited by Franzini et al., 2004) data also showed similar results amongst Mexican-origin women who experienced a loss of perceived opportunity was linked to greater rates of depression, above that of actual opportunity.

Racial/Ethnic Discrimination as a Stressor

A frequent exposure to ethnic discrimination may become a source of chronic stress of affected minorities and influence their health status (e.g., Pascoe et al., 2009). Recent research investigates effects of perceived discrimination on psychological and physiological health within a theoretical framework of stress and coping style (e.g., Major Quinton, & McCoy, 2002; Pascoe, et al., 2009); while stressors alone do not

directly escalate susceptibility to illness, constant uncontrollable and unpredictable stressors (e.g., encounters with racial discrimination) contribute to unregulated stress responses (Clark, Anderson, Clark, & Williams, 1999). In this approach, experience of ethnic discrimination is conceptualized as a “social stressor” which activates several physiological stress responses (e.g., elevated blood pressure, cardiovascular reactivity, and increased cortisol secretions). Overtime, physiological responses may lead to a reduction in resources and lack control, which may lead to detrimental effects on physiological and psychological health (Pascoe, et al., 2009).

Persistent exposure to discriminatory stressors among minority groups may influence the physical health of individuals due to increased perceptions of “otherness” status (Gomez 2000). For example, multiple empirical studies have indicated that minorities’ exposure to discrimination related stressors leads to an unregulated stress response (e.g., high blood pressure, increased cortisol levels) thus leading to deficits in psychological and physical health (Clark, Anderson, Clark, Williams, 1999; Dohrenwend, 2000; Meyer & Northridge, 2007; Meyer, 2003; Pascoe, & et al., 2009). The accumulation of perceived discrimination may activate stress responses leading to negative emotional state, which has been shown to cause increased stress responses; and being expressed in increased cardiovascular reactivity and/or unregulated cortisol responses (Pascoe et al., 2009).

The theatrical model proposed by Pascoe et al., (2009) is based on meta-analysis of 134 studies of minority populations predicts that interactions with racial events or stimuli are strongly associated with a heightened stress response, which in turn predicts disparities in health among ethnic groups (see Figure 2, Pascoe et al., 2009). The model

indicates that influences of perceived discrimination have effects on mental and physical health through multiple pathways. The first pathway suggested by the model is a direct link between perception of discrimination and psychological health outcomes; the increase in perceived discrimination appears to be correlated negatively on measures of psychological health (Path a). In addition to the direct link, the consequences of discriminatory acts on health may be mediated by increased biological stress activation and lead to increase in negative emotional affect, depression, anxiety, and possible unregulated cortisol secretions (Path b). Several studies have suggested that more perceived racism is also linked to negative internalizing symptoms (Flores, et al. 2010) and ethnic identity distancing/confusion, which has been linked to health compromising behaviors (Clark, Anderson, Clark, & Williams, 1999). Consistent exposure to acts of discrimination or perceived acts may act as a direct correlate to negative health status. This pathway (Path c) is suggested to act via allosteric load, which in turn reinforces a continued unregulated stress reaction and consequently may contribute to negative emotional states. Elevated physiological reactions across time contribute to health in a disadvantageous manner. Consistent evaluated stress response has been implicated in individuals increase engagement in health risk behaviors as coping mechanisms (Path d). For example, an analysis of 110 studies by Pascoe et al., (2009) found significant correlations ($r = -.22$ to $r = -.17$) indicating a significant correlation between high levels of reported perceived discrimination and an individual's engagement in health risk behaviors. These results indicated a positive relationship between perceptions of discrimination and participation in health risk activities (i.e., drinking, smoking) and negative correlation with healthy behaviors (e.g., utilizing social support); both categories

of behaviors moderate the influences of discrimination on measures physical and psychological health status. This is represented by Path e in the model, indicating that engagement in health risk behaviors correlated with increased detrimental effects on both psychological and physiological health outcomes.

Testing the theoretically pathways of perceived discrimination on health outcomes remains a difficult task, as current research has yet to fully understand the unique influences minority status may influence the perceptions of discriminatory encounters. A recent study by Flores, Tschann, Dimas, Bachen, Pasch, and de Groat (2008) has attempted to understand the relationship between minority statuses, perceived discrimination, and how these constructs influence health of Hispanics. They propose the Minority Status Stress Model (MSSM), which suggests that it is not an individual social interaction that directly influences the health of Hispanics but rather exposure to the broad array of social situations accruing over time and causing the ethnic group-specific stressors which may lead to long-term health deficits (Meyers, 2003; Meyers, et al., 2007). While the MSSM theory is derived from the general stress theory, the new model allows for the conceptualization of the unique stress process of discrimination in Mexican-origin populations in the United States.

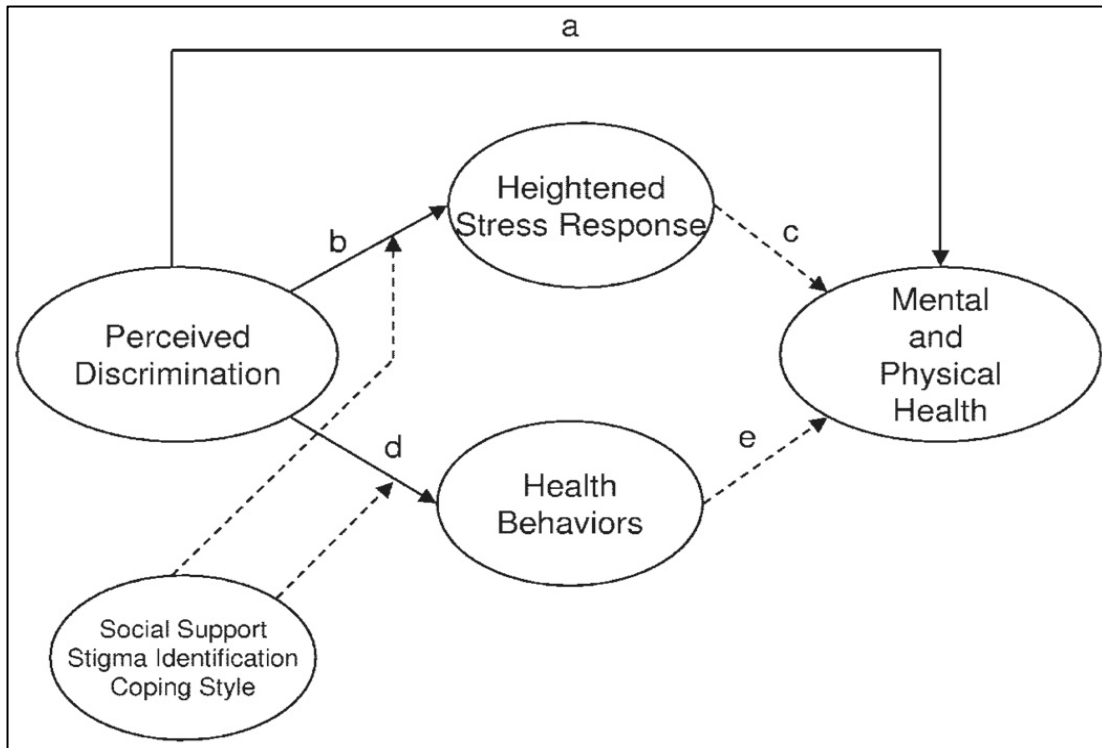


Figure 2. Pathways suggesting the relationship between perceived discrimination influence health status and outcomes. Solid lines designate examined pathways; dashed lines signify pathways that have been hypothesized by previous research (Pascoe et al., 2009).

Important aspects of minority related stressors for Mexican-origin adults are related to the acculturation process (e.g., legal status, language and cultural barriers; Cervantes & Castro, 1985; Miranda, 2000). Acculturative stressors are strong predictors of poor mental health (Flores et al., 2008) and general physical health within Mexican-origin adult populations (Finch & Vega, 2003). Past research suggests that the impact of acculturation stressors decreases with years spent in the United States for Mexican-origin adults but discrimination remains consistent stressor over time (Flores, et al., 2008).

Thus discrimination appears to be a more persistent stress experience than acculturation for Mexican-origin adults.

Investigators have also suggested that ethnic minorities experience greater stressors than their non-ethnic counterparts. Stressors associated with ethnic status may increase minorities' vulnerability to the effects of the aforementioned social/demographic influences, thus increasing susceptibility to chronic health and psychological problems (Harrell, 2000; Turner & Avison, 2003). Ethnic identity distancing/confusion may be a secondary pathway to poor health, and health risk behaviors may lead to more negative internalization. Ryan, et al. (2006) shows that individuals who do not report perceived racism in an attempt to protect their self-concept have higher blood pressure than those reporting perceived racism. Racial and ethnic discrimination is defined throughout the literature as negative behaviors (such as negative racial/ethnic slurs) toward a racial/ethnic group (Edwards & Romero, 2008). Furthermore, Flores, et al., (2010) report that Hispanic adolescents report higher levels of perceived racial and ethnic discrimination than their non-Hispanic white counterparts, and engage in more health risk behaviors, which may lead to poorer health outcomes. Perceived racism is thought to act as a chronic stressor (Pearlin, 1989) and increases incidences of illness. Additionally, perceived racism may limit an individual's willingness to utilize health care and effectively manage chronic illness (Collins & Williams, 1999; Massey & Denton, 1987).

Perceived Discrimination influences on Physical and Mental Health Outcomes

The direct or quantifiable effects of discrimination and physical health status still remain largely unanswered. Past research has attempted to determine the various

pathways in which discrimination may influence health, which is most commonly understood through the process of psychological distress (Thomspon, 1996).

For example, perceived discrimination has clearly been linked to depression (Dion, Dion, & Park, 1992) and sources of traumatic stress (Flores, et al., 2010), which may have implications for physical functioning, suppression of the immune system, and interrupt regulation of dopaminergic pathways (Finch et al., 2001). Flinch et al., (2001) study also found that depression was significantly related to higher perceptions of perceived discrimination when examined in their regression models. Furthermore, distinctive stressful racial interactions expose minorities to significantly more negative psychological and physiological reactions such as depression, anxiety, increased cortisol secretions, an ambulatory blood pressure (Flores, Tschann, Dimas, Bachen, Pasch, de Groat, 2008) thus effecting health outcomes of individuals from these groups (Jackson, Kubansky, & Wright, 2006; Moradi & Risco, 2006).

Moderators' influences on the Perceived Discrimination-Health Pathways

Pascoe et al., (2009) suggest that psychosocial variables may moderate the correlation between perceived discrimination and health status. For example, Pascoe et al., (2009) meta-analysis found that “social support, coping style, ethnic identity, and personality variables” to be potential moderates. Their meta-analysis data also indicated that individuals who report more access to social support during times of stress or illness also report having more health resources such as access to healthy food options, and engaged in preventive health care. Moreover, the act of engaging in social support as a method of coping after experiences of discrimination may allow for the rebuilding an

individual self-efficacy, thus potentially inhibiting the development or impact of depression (Pascoe, et al., 2009).

Social support is a complex construct with potential of affecting health by buffering harmful psychological (Heller & Swindle, 1983) and physiological stressors. Social support allows individuals to access other individuals' perspectives and contextual understanding of stressful events. This interaction may buffer the stressful life events through supportive role of helping the individual understand, evaluate and ascertain solutions to the negative events (Orth-Gomer, 2001). The interactive nature of social support occurs through the establishment of maintenance of relationships (e.g., family or friends) and through the role of perceptual access to the established social support (Lakey & Cohen, 2000). Supportive social responses to one's stress and individual's perception of available social support may influence health outcomes through direct pathways (Lazarus & Folkman, 1984; Moos & Billings, 1982). This direct pathway is evident in Ruberman et al., (1984) study of two thousand men who suffered myocardial infraction (MI). Those men who lacked or perceived little to no social support, or "social isolation" had higher incidences of secondary coronary disease, which increased their rate of mortality. These findings suggest that supportive social responses enhance one's coping performance, while perceptions of available support influence the appraisal process of distressing situations, thus weakening the impact of stressful events on quantifiable health outcomes (Lakey & Cohen, 2000).

Social support has also been shown to be instrumental for the individual to promote effective coping after experiences of stressful life events. For example, social support may allow for feeling of reassurance, which has been associated to with the

down-regulation of the hypothalamic-pituitary-adrenal axis (HPA-axis, Franzini et al., 2004). Lazarus, Kanner, and Folkman (1980) research on stressful conditions found that positive affect provided an essential reprieve from stressful stimuli, which could restore resources otherwise depleted by stressors. Reich, Zautra, and Davis (2003) in the review of stress studies showed that positive coping during stressful periods, which include social support, is effective in rebuilding and strengthening resistance. Similarly, Solberg and Villarreal (1997) found that Hispanic colleges students who perceived greater social support reported less feelings of distress, compared to those that perceived low social support. These findings suggest that social support may enhance coping and reduce susceptibility to stressors.

There is emerging evidence that receiving social support is related directly to health outcomes (Case, Moss, Case McDermott, & Eberly, 1992) within Hispanic populations (Franzini et al., (2004) but the levels of acculturation appear to muddle the exact mechanism social support with Hispanic populations. For example, lower acculturated Mexican men (mainly Spanish speaking) has smaller social “networks” compared to more acculturated English speaking Mexican men, who endorsed larger social “networks” (Franzini, et al., 2004). The more acculturated Hispanics become, the more they tend to have larger social networks, but this is largely explained to the length of time in the U.S., as newly immigrated Hispanics will not have the time or ability to create and maintain social networks (Franzini et al., 2004). In general, acculturated Mexican-Americans were more likely to rely on friends and family than NHW and NHB, thus supporting the collective nature of the Hispanic culture. The role of family is an important variable to consider when examining the influences of social support within

Hispanic populations. For example, the role of the familial social support was found to be a strong predictor for better health outcomes and lower rates of depression among Hispanic women (Franzini, et al., 2004). Sloan, Jason, & Addlesperger (1996) results also indicate that Hispanic single mothers who reported not seeking support from friends was a strong predictor for depression, and lower survival rates for Hispanic males post MI (Farmer et al., 1996).

Social support with in Hispanics sample populations, indicates that higher levels of social support was predictive of more engagement in health seeking behaviors (e.g., cancer screening, diabetes management) and increased exercise among low SES and older Mexican-American (Franzini et al., 2004). Given the implications of the role of social support in Hispanic health outcomes, it is important to consider the construct through the appraisal process because of the collective nature of Hispanic communities (Triandis, Bontempo, Villarela, Asai, & Lucca, 1988). Social support with the context of the current study, examines social support through the perceptions of available social, received support, seeking behaviors to obtain support and the coping that occurs when support is received (Barera, 1986; Cohen & Willis, 1985; Dunkel-Schetter & Bennett, 1990), which should allow for a more accurately understanding of the relationships between social support and health outcomes.

Health Risk Behaviors as Coping

Given that social support may act in a bidirectional manner, meaning that social support is considered a resource and may influence health outcomes either in positive or negative direction (Cohen & Syme, 1985). In the current study, the directionally of social support is examined through available social support, which is considered positive

when it is related to the decreasing of the influences of discrimination relationship to negative health status (Pascoe et al., 2009) or negative through the engagement in health risk behaviors, such as drug and alcohol usage. Only a few studies have examined the effects of perceived racial discrimination and among negative coping within Hispanics populations (Green, Way, & Pahl, 2006; Grossman & Liang, 2008; Szalacha et al., 2003; Taylor & Turner, 2002). While these studies primary focus was on mental health and the influences of perceived racial/ethnic discrimination associations with depressive symptomology and self-esteem (Edwards & Romero, 2008; Romero et al., 2007; 2003b; Umana-Taylor & Updegraff, 2007) there were some attempts at understanding the role health risk behaviors utilized by Hispanic adolescents (Flores et al., 2012). This research suggests that as a stressor, racial discrimination can lead to a sustained process of internalizing negative beliefs, which may assault Mexican American adolescents' self-worth, thus increasing the participation in health compromising behaviors.

For instance, several studies have examined the possible direct or indirect links of perceived discrimination and risky health seeking behaviors. An examination of American Indian children and adolescents found that those who reported greater perceived racial/ethnic discrimination had earlier onset substance abuse (Whitbeck, Hoyt, McMorris, Chen, & Stubben, 2001). Furthermore, NH Black youth that reported high instances of perceived discrimination were associated with more aggressive behaviors, delinquency, and alcohol use (Terrell, Miller, Foster, & Watkins, 2006). Additionally, perceived racial discrimination was a strong predictor of drugs use and aggression (Smokowski & Bacallao, 2006) for Latino and African American inner-city adolescents reporting for mental health services (Surko, Ciro, Blackwood, Nembhard, & Peake, 2005).

For adult Hispanic men, experiencing racial discrimination was significantly related to a reporting of having high sexual encounter with multiple partners, and less likely to engage in safe sex practices (i.e., condom use).

Perceived discrimination experiences may diminish self-control resources of individuals and increase chances of their involvement in health risk behaviors, and/or decrease participation in health choice behaviors (Pascoe et al., 2009). For example, Inzlicht, McKay, & Aronson (2006) data indicated that individuals who report encounters of perceived discrimination as more salient had significantly impaired self-control than individuals with less salient experiences. This suggests that individuals whom endorsed more salient encounters with discrimination may have had a diminished capacity to engage in healthy behaviors or cope with stress adaptively. Inzlicht, et al., (2006) findings support numerous evidence that perceived racial discrimination is correlated with health risk behaviors such as increased tobacco use, increased alcohol and drug use and abuse (Bennett, Wolin, Robinson, Fowler, & Edwards, 2005) and may lead to an increased risk of nonparticipation in health seeking behaviors, which encourage positive health status, (i.e., sexually transmitted disease testing, and a lower inclination to use condoms; McSwan, 2000).

Minority Status Stress Model

Current health disparities models focus on the possibility that genetic predispositions may contribute to morbidity and mortality outcomes (Cooper & David, 1986) to explain poor health outcomes of Non-Hispanic Black and Hispanic populations. A few studies have begun to examine the possible connection between perceived discrimination and health status with Hispanics (e.g., Finch, et al., 2001; Fisher, Wallace,

& Fenton, 2000; Flores, Tschann, Dimas, Pasch, and de Groat, 2010; Lee, Ayers, & Kronenfeld, 2009) communities. These studies have shown that level of higher levels of acculturation, lower socioeconomic status (SES), lower level of education, and perceived discrimination acts as predictors of poorer physical and psychological health outcomes.

While general stress theory (Lakey & Cohen, 2000) has been used in past research to explain impact of adversary, ethnicity-related events on physiological and psychological outcomes, this model has been criticized due to the less than sensitive measurements of distinct stressors associated with culturally distinct ethnic populations (Cervantes & Castro, 1985; Slavin, et al., 1991). For example, Slavin, Rainer, McCreary, & Gowda (1991) have argued the general stress response theory lacks relevant cultural factors to examine unique experiences of discrimination, which contribute to the unique nature of stressful life events experienced by minorities, the appraisal process that occurs, and the perceptions of accessible choices and resources allowing for the engagement of efficacious coping skills. In attempt to correct and discover sensitive methods of measuring and understanding stress-related discrimination, researchers consider examining factors experienced by ethnic discrimination: (a) occurrences with racial/ethnic discriminatory acts; (b) the knowledge that knowledge that their social identity is degraded; (c) and understanding the influences of stereotype threats by identifying specific stereotypes that other groups project and hold against minority groups; as well as the related anxiety of having the stereotypes being conformed (Steele & Aronson, 1995). Despite the criticism of the current model, both theoretical and empirical research has examined minority related stressors under the contextual traditional stress model (Harrell, 2000), but this process may be lacking as traditional

stressors do not appear to fully encompass the complex influences racial discrimination may encompass.

Consistent with these theoretical recommendations, the Minority Status Stress Model (MSSM) suggests that it is not an individual social interaction that directly influences the health of Hispanics, but rather exposure to the broad array of social situations accruing over time; causing unique stressors which may lead to long-term health deficits (Meyers, 2003; Meyers, et al., 2007). While the MSSM theory is derived from the general stress theory, the new theoretical approach allows for the conceptualization of the unique stress process of discrimination in Mexican-origin populations in the United States (Slavin, et al, 1991). For example, Slavin, et al., (1991) included salient cultural factors to the general stress theory, which is integral to understanding the unique stress response experienced by ethnic populations.

Moreover, the MSSM (Flores, et al., 2010) proposes the experiencing of ethnic discrimination places Hispanic adults at greater risk for negative psychical and psychological health outcomes. The model has been empirically confirmed on an adult Hispanic population, with the data showing that higher levels of perceived racial discrimination was significantly related to higher rates of depression and poorer self-rated health status, whilst controlling for “age, gender, SES, and acculturation level.” Moreover, the results revealed that perceived racial discrimination acts as a chronic unique stressor, above and beyond that of self-reported general stressors. The results are supported by meta analyses, which showed the possible influences of perceived discrimination-stress response, indicating a significant explanation for the increases in stress response (Pascoe, et al., 2009) among minority populations.

The purpose of the current study is to test the strength of the pathways in which perceived discrimination is predicative of physical and psychological health. Also to determine, if discrimination is predicative of negative health choice behaviors, and examine the possible moderating effects of perceived social support may have on health seeking behaviors and overall health.

Study Rationale and Hypotheses

The current models of discrimination (Flores et al., 2008; Pascoe et al., 2009) consider the possible influences moderators may direct health outcomes.

Socialdemographic variables (e.g., socioeconomic status, level of education, & employment status) have been found to be strong predictors for poor health and psychological outcomes among races and genders (Krieger, Williams, & Moss, 1997). Researchers have proposed that individuals from disadvantaged and underserved communities are frequently subjected to additional conditions such as racial stigmatization, environmental stressors, unequal health care treatment and poor health care utilization; (e.g., Allison, 1998; Spalter-Roththat, Lowenthal, & Rubio, 2005).

The current study intends to replicate the empirically tested Minority Status Stress Model (MSSM) expanded upon by Flores et al., (2008). The model expanded by Flores, et al., (2008) proposes that experiencing racial discrimination is predictive of poorer physical and psychological outcomes amongst Hispanics, when controlling for general life stress. Their results also indicated that perceived racial discrimination significantly predicted greater depression and inferior general physical health on measures of self-rated health; controlling for age, gender, SES, and acculturation level. Additionally, they found that perceived racial discrimination acted as a unique source of chronic stress and

exerted negative influences on health outcomes, whilst controlling for general life stressors. Based on Flores et al., (2008) findings, it was predicted that more reported perceived discrimination would be associated with poorer mental and physical health, above the influences of general stress.

The current study included multiple assessments of the physical health status as measures of health outcomes. Specifically, three measures of physical health were added: self-rated health, current chronic conditions checklist (e.g., diabetes, high blood pressure, etc.), and body-mass index (BMI) and blood pressure (BP). BMI and BP were added to serve as objective measures of health. The addition of an objective measure of current health was included to provide a counter balance to measures of reported self-rated health. While, self-rated health has been shown to be strong predictor of overall physical wellbeing (Ferraro & Farmer, 1999) and mortality (Idler & Benyamini, 1997), it relies completely on individuals' recollection. Finch et al., (2001) found that combining objective measures, such as a count of chronic health conditions based on physician reports to self-report measures of health improves predictive validity of an individual's health status. Based on Finch et al., (2001) findings, it was hypothesized that the addition of measures of objective of health would provide a better understanding of the relationship perceived discrimination has on current physical health and psychological health.

To better understand the pathways in which perceived discrimination influences health, we examined the role of perceived social support effect on perceived discrimination, and how this relationship relates to physical and psychological health. We hypothesized that more reported perceived social support would moderate racial/ethnic discrimination in a positive direction, thus showing positive physical and

mental health outcomes, whilst controlling for general stress. Furthermore, it was hypothesized that higher perceived social support would be associated with health seeking behaviors, as measured by obtaining yearly medical checkups, having dental and/or health insurance, and for women currently prescribed birth control. The rationale for birth control as a measure of health seeking behaviors was based on the need for a cervical and medical exam to obtain a perception. In addition, birth control is used for non-contraceptive preventive care. For example, women will be perceived “the pill” to treat pelvic inflammatory disease, reduce polycystic ovary syndrome, anemia and menstrual cramps (Huber, Bentz, Ott, & Tempfer, 2008).

In addition to the predicated positive nature of social support, the verse was examined to determine if lower perceived social support was related to negative coping, as measured by alcohol and drug use. It is hypothesized that individuals with low levels of social support will have higher scores on measures of alcohol and drug use. Finally, it is anticipated that individuals engaging in negative health-seeking behaviors would subsequently have higher BMI scores, higher blood pressure, and more chronic conditions than with more perceived social support.

CHAPTER III

RESEARCH DESIGN AND METHODS

Participants

Seventy Hispanic American and Mexican origin male and female participants were sought from a Central Texas University to examine the influence of perceived racism on self-reported health. Eligibility criteria will include (a) persons 18 years of age and older, (b) who self-identify as Hispanics or newly immigrated Hispanic nationals. All participants in this research study were given extra credit from the course they had approval, and the amount of extra credit was decided by the instructor(s).

Measurement

The dependent variables of health: Center for Epidemiological Studies Depression Scale (CES-D), Self-Rated Health (SRH-5), and BMI and BP (combined into a single factor of health), will be measured against the predictor variable: Discrimination Stress Scale (DSS), and covariates of socioeconomic status (SES), Perceived Stress Scale (PSS), Marin Acculturation Scale (MAS), Alcohol Use Disorder Identification Test (AUDIT), Drug Abuse Screening Test (DAST) the Patient Health Questionnaire 15-Item Somatic Symptom Severity Scale (PHQ-15). The DAST and the AUDIT were combined into a single factor of health-risk behaviors. Additionally, yearly medical checkups, insurance

and birth control responses were combined into a single item of health-seeking behaviors. Multidimensional Scale of Perceived Social Support (MSPSS) will be examined to determine if social support influences DSS scores and overall health scores.

Research Instruments

Independent Variables

The Discrimination Stress Scale (DSS; Flores, et al., 2008) is a 14-item questionnaire that measures perceived discrimination based on ethnic minority status in daily interactions. Responses are measured using a 4-point Likert scale, with verbal anchors ranging from: 1 = never to 4 = very often scale; for example, “How often are you treated rudely or unfairly because of your race or ethnicity. High internal consistency ($\alpha = 0.92$) has been reported within samples of Mexican-origin adults (Flores et al., 2008).

Dependent Variables

The Center for Epidemiological Studies Depression Scale (CES-D) is a 20-item self-report scale that measures depressive symptoms within community samples within the past week. CESD-20 scores range from 0-60, with higher scores indicating more symptomatology. Cut-off scores have been established at 16, which is significant to mild depressive symptomatology. Scores above the cut-off point have been equated to experiencing six or more symptoms within the previous week. Internal consistency has been shown to be high within community sample scores ($\alpha = 0.88$). Roberts (1980) findings support the validity for cross-cultural differences in outcomes among Mexican Americans versus European-Americans versus African Americans.

The Self-Rated Health (SRH-5; Eriksson, Uden, & Elofsson, 2001) is a three-item measure designed to assess an individual's perceptions of physical health. SRH-5 scores have also reported reasonable internal consistency ($\alpha = 0.70$) among non-Hispanic whites (NHW) and test-retest reliability (.90) (Lorig, Stweart, Ritter, Gonzalez, Laurent, & Lynch, 1996), but reliability drops when assessing SRH with Mexican-American men and women (Hummer, Benjamins, & Rogers, 2004) due to the somatization of psychological conditions (depression, anxiety, etc.) (Katon, Kleinman, & Rosen, 1982). Scores on the SRH-5 and SRH-age are reversed scored, meaning that higher scores are equivalent to higher ratings of health.

The Alcohol Use Disorder Identification Test (AUDIT 10, Saunders, Aasland, Babor, de la Fuente, & Grant, 1993) item includes questions, which evaluates the frequency of alcohol consumption and use (items 1-3), alcohol dependence (questions 4-6) and complications interrelated to the consumption of alcohol (items 7-10). Scoring for the AUDIT sets cut-off scores for men at 8 and 7 for women. Meneses-Gaya, Zuardi, Lourerio, & Crippa (2009) study established the validity of the AUDIT test-retest reliability at .84. Additionally, they found high internal consistency ($\alpha = .80$) for AUDIT construct validity.

The Drug Abuse Screening Test (DAST-10; Skinner, 1982) is a self-report shortened version of the DAST-20, and measures the abuse of drugs. The DAST-10 has been found to have similar reliability and validity with Michigan Alcoholism Screening Test, which is a robust measure for establishing clinical drugs abuse and dependences (Skinner, 1982). The DAST-10 measures participants' use of such drugs as: barbiturates, cocaine, hallucinogens, and cannabis. The DAST-10 was found to have higher internal

consistency and reliability ($\alpha = .93$) within Spanish populations (Bedregal, Sobell, Sobell, & Simco, 2006). DAST-10 scoring interpretation suggests that scores 1-2 indicate risk behavior, 3-5 harmful behavior, and 6-8 substantial level for dependence and substance abuse disorder.

The Perceived Stress Scale (PSS; Cohen, Kamarack, & Mermelstein, 1982) is a 10-item measure designed to tap the degree to which respondent's rate stressful experience in daily situations, over the past month. The PSS was designed for use in community samples and scores have been reported to have cross-cultural relevance (Cohen, et al., 1988). Scores are determined by calculating the mean value across the measure items. Scores also have evidence for cross-validation on health risk measures, such as quitting smoking, diabetic control, and life-event-elicited depressive symptoms ($\alpha = 0.77$). Additionally, scores from Mexican-Spanish populations on the PSS have demonstrated high internal consistency ($\alpha = 0.83$) (Ramirez & Hernandez, 2007). Flores, et al., (2008) have also reported high reliability from their Hispanic sample ($\alpha = 0.89$).

The Marin Acculturation (MAS, Marin, Sabogal, Marin, Sabogal, & Perez-Stable, 1987) scale is a 5-item questionnaire designed to measure level of acculturation for Mexicans living within the United States by identifying the individuals' use of language. For example, questions are designed to measure how individuals' use language to think, interact impersonally, and what language they use at work or home: "In general what language(s) do you read and speak? What language(s) do you usually use at home...with close friends?" Mean scores are obtained to determine acculturation status; a score of 3 denotes the use of both languages equally. Less acculturated individuals have average score between 1 and 2.99 and more acculturated individuals have average score above

2.9. Marin et al., (1987) has found the measure to have high reliability ($\alpha = 0.92$). Flores, et al., (2008) also found similar reliability from their sample ($\alpha = 0.90$).

The Patient Health Questionnaire (PHQ-15; Kroenke, Spitzer, & Kroenke, 2002) is a 15-item self-administered somatic symptoms screening for somatization. The PHQ-15 is a subscale of the full PHQ, and taps 14 out of 15 of the most common DSM-IV somatization disorder symptoms. Participants are asked: “Over the last 2 weeks, how often have you been bothered by any of the following problems?” Scoring response options for two symptoms are coded at a zero point (“not at all”), 1 (“several days”), or 2 (“more than half the days” or “nearly every day”). Scoring the PHQ-15 consists of, coding each individual endorsed symptom as: “0, 1, or 2, and the total score ranges from 0 to 30. Scores of 5, 10, and 15 represent cutoff points for “low, medium, or high somatic symptom severity, respectively.” The PHQ-15 was found to have high internal reliability, and strong convergent validity between PHQ-15 scores and functional status (Kroneke, Spitzet, & Williams, 2002).

The Omron BP785 10 Series Upper Arm Monitor (BP785) measured blood pressure, which is a noninvasive semi-automatic oscillometric blood pressure device. Oscillometric measurements have been shown to be just as reliable as auscultatory method mercury sphygmomanometer. White and Anwar (2001) findings showed no differences in accuracy of the Omron compared to aneroid sphygmomanometer method (1.56 ± 4.42 mmHg and 3.49 ± 4.61 mmHg for diastolic and systolic blood pressure respectively). Initial cuff inflation pressure exceeds the systolic arterial pressure, and then is reduced below diastolic pressure for approximately 40 seconds. Systolic and diastolic

pressure numbers are calculated using an established algorithm. The results are presented electronically.

Participant's weight will be measured using a Seca digital scale (Model 882) and rounded to the nearest .1 pound. Additionally, height will be taken using a measuring tape, and rounded to the nearest half inch. Body composition will be measured through body mass index ($BMI = \text{weight (lb.)} / [\text{height (in)}]^2 \times 703$). BMI has been found to be a significant predictor of overweight status in Mexican-origin adults. For example, Ozuna-Ramirez, Hernandez-Prado, Campuzano, and Salmeron (2006) found that self-report BMI closely matched to measured BMI, thus making BMI a useful tool in epidemiological assessments.

Socioeconomic Status (SES) of participant will be identified by education, employment status, and gross annual income. Education will be represented as in normative intervals of educational achievement: 0 through 6 years, 7 through 11 years, 12 years (high school diploma or equivalent), 13 plus (some college: technical, community, university), 13 through 16 (college), and 16 plus (postsecondary degree). Individual annual income will be categorized into 7,000 dollar intervals: less than \$6,000; \$6,000 through \$13,000; \$13,001 through \$19,000; \$19,001 through \$26,000; \$26,001 through \$33,000; and more than \$33,000. Employment status will be dichotomized into four categories: unemployed, employed, disabled, homemaker, and other work. Finch, et al., recommends this categorization to reflect informal labor markets (i.e., out-of-home trade workers or day labors. Years of education, income, and employment status were standardized and combined to form a composite score of SES.

The Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dahlem, Zimet & Farley, 1988) is a 12-item measure assessing perceptions of support from friends, family, and significant others (for example, “There is a special person in my life who cares about my feelings.” The MSPSS measure is divided into sections with questions 1, 2, 5, 10 assessing support from significant others; questions 3, 4, 8, 11 assessing support from family; and questions 6, 7, 9, 12 assessing support from friends. Scores on the MSPSS range from 7-84, which divide into three categories of acuity based on scores: 12-48 low acuity, 49-69 medium acuity, and 69-84 high acuity. The MSPSS has been found to have high reliability ($\alpha = 0.85$ and 0.91) and test-retest reliability (0.72 and 0.85) with undergraduate populations (Zimet, Powell, Farley, Wekman, & Belfkoff, 1990). Additionally, Edwards (2004) found the MSPSS to high internal consistency scores for both the Family and Friends subscales ($\alpha = 0.88$ and 0.90 , respectively) in Hispanic youth populations.

Procedure

Data collection occurred in university research rooms within the psychology building. Researchers were introduced to the tasks, and provided a consent form. Blood pressure (BP) was taken before the administration of survey materials, to minimize BP variability (Parati, Medis, Abegunde, Asmar, Mieke, Murrar, Shengelia, Steenvoorden, Montfrans, & O’Brien, 2005) and control for inflated stress due to the reporting of perceived racism. BP was measured using the semi-automatic Omron BP785 10 Series Upper Arm Blood Pressure Monitor (BP785). Participants were assured that all measurements are for study purposes and not for medical examination. Such assurances have been shown to lower anxiety (Parati, et. al., 2005) and reduce measurement error

associated with anxiety caused by the white-coat hypertension effect (Jhalani, Goyal, Clemow, Schwartz, Pickering, & Gerin, 2005). Participants were asked to sit in a comfortable chair, which provided back support, with uncrossed legs, and arms supported at heart level. BP was measured on the upper area of the arm. Past research has indicated upper arm measurements are more accurate than forearm measurements (Fortune, Jeselnik, Johnson, Zhao, Smith, Houghton, Hamilton, Cates, & Crigger, 2008). Cuff adjustments were made, and BP was measured twice, with the reading being the recorded BP. Once BP was measured, participant's weight was measured using a Seca digital scale (Model 882) and rounded to the nearest .1 lb. Additionally, height was taken using an established measuring board, and rounded to the nearest half inch. Body composition was measured through the body mass index ($BMI = kg/m^2$). Once BP was recorded, participants then were provided with the survey packet, which took approximately 40 minutes to complete. Upon completion of the survey packet all participants were debriefed on the studies aims, and given contact information for the study's results.

Missing Data & Data Screening

For all study variables were examined for missing data, normal distribution, skewness and kurtosis. Participants that were missing less than 10% of a measure item, the scale score was calculated based on available items, and the more conservative response was inputted into the missing case (Flores, et al., 2008). There were no participants missing more than 10% of a measure item. Cross tabs were performed to examine the mean differences between gender, BMI, and BP. The results indicated heteroscedasticity, thus a single item (body-index variable) was created using factor

reduction to create a shared variance score of BMI and BP to examine the estimated mean differences produced by the regression model. A few demographic and study variables validated Levene's Test of Equality (i.e., first generation college students, health seeking behaviors, dental insurance, chronic conditions), thus violating the homogeneity of variance assumption. As well the independent variables: health seeking behaviors, self-rated health, and health symptoms were not normally distributed. To correct for the distribution shape of the predictor variables, and the heteroscedasticity of the demographic variables, a series of natural log transformations, and log 10 transformations were conducted to reduce the unequal variance across variables (Warner, 2008).

Data Analytic Strategy

The AUDIT and DAST were combined into a single item of health-risk behaviors. Additionally, participants' responses on yearly medical checkups, currently enrolled in medical and dental insurance, and taking birth control were compressed into a single item of health-seeking behaviors. Correlations were conducted to determine the relationships between the predictor variables and criterion variables. Additionally, *t*-test and chi-square analysis were conducted to determine the mean differences between demographic variables and the independent variables, covariate variables, and dependent variable. To determine if perceived discrimination was related to depression, self-reported health, and medical history checklist, a series of multiple regressions equations were conducted. In each equation, demographic variables were entered (socioeconomic status, gender, country of origin, age, and acculturation) as covariates.

CHAPTER IV

RESULTS

Descriptive Statistics

Demographic statistics, study variables, *t*-test and chi-square significances are presented separately for men and women in Table 1. Women reported significantly more perceived stress $t(68) = 2.09, p < .04$, than men, and more chronic conditions $t(68) = 2.00, p < .05$, than men. Women on average had one chronic condition, whereas men reported less than one chronic condition. Men reported significantly more alcohol use $t(66) = -2.52, p < .04$. Table 2 shows the count and percentage of chronic conditions for the sample population.

Table 3 shows the zero-order correlations between all study variables. Depression was significantly related to perceived discrimination ($r = .34, p < .001$), and drug use ($r = .24, p < .05$). Perceived stress was significantly related to somatization and chronic conditions (numbers?). While the correlations between the dependent variable of discrimination and health outcome measures were small, they were significant and support the relationships presented in past research (see Flores et al., 2008 & Finch et al., 2001). Acculturation level was significantly related to having health and dental insurance ($r = .50, p < .05$; $r = .40, p < .05$, respectively), perceived social support ($r = .29, p < .05$), and health seeking behaviors ($r = .44, p < .01$), obtaining yearly medical checkups and perceived birth control. Inconsistent with Flores, et al., (2008) findings, there were no

significant differences between gender and depression ($F(1, 68) = .44, p < .50$). The failure to find significant results may be due to unmeasured health seeking behaviors or a lack of statistical power due to the sample size.

Table 1

Demographic Characteristics of Participants (N = 70)

Variable	Males (<i>n</i> = 14) <i>M</i> (<i>SD</i>) or %	Females (<i>n</i> = 56) <i>M</i> (<i>SD</i>) or %	<i>t</i> or χ^2
Age	20.16 (1.91)	22 (3.35)	-1.98
Born in Mexico	7.1%	5.4%	0.07
Born in U.S.	92.9%	94.6%	-0.25
Relationship (committed)	43.1%	38.3%	-0.45
Education (years)	15 (1.50)	14.36 (1.22)	9.60
Parents completed H.S.	57.1 %	67%	0.98
First Generation College	78.6%	66%	-1.12
Socioeconomic status	6.64 (2.0)	6.46 (1.50)	-0.32
Health insurance	57%	64%	1.47
Dental insurance	29%	59%	4.14
Acculturation	3.95 (0.932)	4.08 (0.74)	0.54
Perceived discrimination	14.29 (8.80)	13.60 (9.30)	-0.26
Perceived stress	17.71 (5.82)	21.21 (5.52)	2.09**
Depression	15.7 (10.6)	17.4 (7.0)	0.72
Perceived social support	68 (9.10)	68.50 (10.83)	0.17
Self-rate health	14.4 (1.22)	13.61 (1.4)	-1.84
Health Symptoms	0.50 (0.65)	1.20 (1.25)	2.00*
Somatization	7.00 (3.40)	8.83 (4.52)	0.96
Alcohol use	9.0 (3.82)	6.15 (3.40)	-2.52**
Drug use	3.43 (3.91)	1.71 (3.0)	-1.82
Body-mass index	27 (5.91)	25 (5.62)	-0.75
Systolic BP	123.5 (16.1)	102.9 (15.6)	-4.57
Diastolic BP	77.79 (11.04)	71.02 (7.44)	-2.74
Health seeking behaviors	1.14 (0.86)	2.16 (1.40)	2.60

* $p < .05$ ** $p < .01$. All tests are two tailed.

Table 2

Chronic Condition – Hopkins Check List (N = 70)

Variable	Number	Percent
Abnormal menstrual cycle	11	15.7%
Arthritis	2	2.8%
Asthma	3	4.3%
Bronchitis	4	5.7%
Dizziness	4	5.7%
Eye problems	5	7.1%
Fainting	1	1.4%
Heart condition	1	1.4%
Heart palpitations	2	2.9%
High blood pressure	3	4.3%
High cholesterol	1	1.4%
HIV/AIDS	1	1.4%
Low blood pressure	1	1.4%
Pain/pressure in chest	8	11.4%
Shortness of breath	10	14.2%
Stomach liver/intestinal	4	5.7%
Thyroid (abnormal)	2	2.9%
Unary tract infection	5	7.1%

Perceived Discrimination and Health

Standardized and unstandardized regression coefficients for the predictor variable of perceived discrimination and covariates on the health measure of depression are presented in Table 4. Greater scores on perceived discrimination were significantly related to depression ($b = .16$, $t(67) = 2.20$, $p < .031$), and health symptoms $b = -0.01$, $t(67) = -1.95$, $p < .05$, with the addition of demographic variables (see Table 4 and Table 6) in the regression equation. Perceived discrimination was found not to be significantly related to self-rated health ($b = 0.00$, $t(67) = -1.11$, $p = .27$), or the combined body-factor measure of BMI and BP ($b = 0.07$, $t(67) = 0.34$, $p = .73$; see Table 5). While the overall regression model was significant and the findings are consistent with Flores et al., (2008) results, perceived discrimination and health symptoms only explained a small amount of

variance in regression model, thus making it difficult to determine if perceived discrimination was the main effect, or other variables influenced the magnitude the beta coefficients when entered into the regression equations (Warner, 2008).

Perceived Stress and Health

More perceived stress were found to be significantly related to increased depression ($b = .63$, $t(67) = 4.48$, $p < .000$). Based on the current data, perceived stress appears to be influencing depression more than perceived discrimination, which is inconsistent with Flores et al., (2008) findings.

Table 3
Correlations and Descriptive Statistics for Study Variables (N = 70)

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. Age	-											
2. Gender	.31**	-										
3. Country origin	-.03	.03	-									
4. Body-mass index	.13	.09	.10	-								
5. Socioeconomic status	.20	.03	.06	.10	-							
6. Perceived discrimination	.09	.03	-.12	.07	-.15	-						
7. Perceived social support	.25*	-.02	-.18	-.09	.15	-.05	-					
8. Somatization	.09	-.12	-.05	-.14	.19	.21	.14	-				
9. Depression	-.28*	-.08	-.29	-.01	-.09	.34**	-.14	.24	-			
10. Acculturation	.14	-.06	-.42**	-.12	.02	.08	.29*	.10	.11	-		
11. Self-rated health	.11	.21	-.18	-.04	-.15	-.07	.13	.13	-.03	.06	-	
13. Perceived stress	-.16	-.25*	-.19	.11	.22	.25*	-.12	.14	.55**	.10	-.17	-

* $p < .05$ ** $p < .01$. All tests are two tailed.

Table 3 - *Continued*

Variable	1	2	3	4	5	6	7	8	9	10	11	12
13. Health insurance	-.07	-.18	-.18	-.10	.00	.02	.11	.13	.14	.50**	.05	.10
14. Dental insurance	-.28*	-.24*	-.14	-.11	.03	.10	.23	.19	.21	.40**	.04	.16
15. Health symptoms	-.10	-.24*	.10	.01	.20	.21	.01	.39**	.26*	-.10	-.27*	.26*
16. Birth control	-.12	-.31*	-.01	-.28*	.08	-.14	.04	.19	.07	.17	-.06	.17
17. Medical checkup	.04	-.13	-.15	-.05	.17	-.05	.11	.08	-.00	.14	.03	.13
18. Drug use	-.04	.22	.03	.07	.02	.08	-.26*	.11	.27*	-.07	.12	.06
19. Alcohol use	.20	.30*	-.10	.07	-.01	.24*	-.97	.06	.24	.13	.17	.02
20. Health seeking behaviors	-.16	-.30*	-.17	-.19	.10	.00	.17	.20	.15	.44**	-.01	.19
21. Systolic blood pressure	.29*	.49**	-.29*	.39**	.20	.05	-.17	.09	.11	-.10	.21	.05
22. Diastolic blood pressure	.34**	.32**	-.11	.37**	.21	.07	-.18	-.00	.01	.06	.13	.08

* $p < .05$ ** $p < .01$. All tests are two tailed.

Table 3 - *Continued*

Variable	13	14	15	16	17	18	19	20	21	22
13. Health insurance	-									
14. Dental insurance	.86**	-								
15. Health symptoms	.06	.11	-							
16. Birth control	.24*	.19	-.19	-						
17. Medical checkup	.09	.14	.03	.42**	-					
18. Drug use	.02	.04	.08	.09	.17	-				
19. Alcohol use	.02	-.05	.01	.14	.18	.53**	-			
20. Health seeking behaviors	.79**	.79**	.12	.64**	.59**	.13	.09	-		
21. Systolic blood pressure	-.23	-.28*	.03	-.26*	-.10	.19	.16	-.30*	-	
22. Diastolic blood pressure	.09	-.07	-.04	-.08	.04	.05	.18	-.08	.61**	-

* $p < .05$ ** $p < .01$. All tests are two tailed.

Table 4

Regression Analysis Summary for Study Variables Predicting Depression

Variable	<i>B</i>	<i>SE B</i>	β	<i>t</i>	<i>p</i>
Gender	0.31	2.33	-0.15	-0.12	.900
Country of origin	-10.50	3.94	-0.32	-2.64	.010
Age	-1.00	0.40	-0.30	-2.40	.020
SES	-0.02	0.38	-0.01	-0.06	.960
Acculturation	0.44	2.70	0.02	0.16	.880
Discrimination	0.16	0.89	0.23	2.20	.031
Stress	0.63	0.15	0.47	4.48	.000
Social support	-9.04	4.94	-0.20	-1.83	.072
Somatization	-9.96	4.31	-0.23	-2.31	.025
Health-Seeking	0.05	0.63	0.01	0.08	.936
Health-Risk	0.01	0.30	0.07	0.48	.621

Note. $R^2 = .57$ ($N = 70$, $p < .000$).

Perceived Discrimination, Social Support and Health

Perceived social support was not found to be significantly related to any measures of health, and based on the data does not appear to be related to perceived discrimination or perceived stress (see regression tables). These findings are inconsistent with past research on social support and health outcomes (see Finch et al., 2001). However, the objective measure of current physical health, (combined as a single item of body-factor), was only found to be significantly related to gender ($b = 21.07$, $t(67) = 3.46$, $p < .001$) and country of origin ($b = -21.37$, $t(67) = -2.84$, $p < .006$) (see Table 7).

Table 5

Regression Analysis Summary for Study Variables Predicting Self-Rated Health

Variable	<i>B</i>	<i>SE B</i>	β	<i>t</i>	<i>p</i>
Gender	0.40	0.04	0.15	1.06	.292
Country of origin	-0.08	0.60	-0.18	-1.36	.181
Age	0.01	0.01	0.20	1.27	.210
SES	-0.01	0.01	-0.23	-1.65	.105
Acculturation	0.33	0.05	0.11	0.73	.470
Discrimination	-0.00	0.00	-0.15	-1.11	.271
Stress	-0.00	0.00	-0.05	-0.31	.760
Social support	0.13	0.09	0.21	1.42	.160
Somatization	0.02	0.10	-0.03	-0.14	.870
Health-Seeking	0.01	0.01	0.06	0.42	.680
Health-Risk	0.00	0.00	0.15	0.86	.393

Note. $R^2 = .44$ ($N = 70$, $p < .301$).

Table 6

Regression Analysis Summary for Study Variables Predicting Hopkins Chronic Conditions

Variable	<i>B</i>	<i>SE B</i>	β	<i>t</i>	<i>p</i>
Gender	0.09	0.06	0.20	1.64	.106
Country of origin	0.02	0.01	0.03	1.40	.872
Age	-0.11	0.10	-0.14	-1.05	.297
SES	-0.01	0.01	-0.18	-1.28	.205
Acculturation	-0.05	0.08	-0.09	-0.60	.550
Discrimination	-0.01	0.00	-0.26	-1.95	.050
Stress	-0.00	0.00	-0.11	-0.71	.478
Social support	-0.09	0.16	-0.08	-0.53	.478
Somatization	-0.08	0.18	-0.08	-0.45	.598
Health-Seeking	0.00	0.02	0.04	0.24	.651
Health-Risk	0.00	0.00	-0.06	-0.34	.738

Note. $R^2 = .46$ ($N = 70$, $p < .157$).

Table 7

Regression Analysis Summary for Study Variables Predicting Body-Factor (BMI & BP)

Variable	<i>B</i>	<i>SE B</i>	β	<i>t</i>	<i>p</i>
Gender	21.07	6.12	0.40	3.46	.001
Country of origin	-27.37	9.62	-0.31	-2.84	.006
Age	0.97	1.11	0.11	0.87	.390
SES	1.83	1.00	0.21	1.83	.073
Acculturation	6.02	7.16	0.10	0.84	.404
Discrimination	0.07	0.25	0.04	0.34	.734
Stress	0.38	0.44	0.11	0.86	.391
Social support	-12.46	14.92	-0.10	0.84	.407
Somatization	3.23	16.79	0.03	-1.71	.848
Health-Seeking	-3.09	1.80	-0.20	-1.71	.092
Health-Risk	0.07	0.09	0.11	0.76	.449

Note. $R^2 = .46$ ($N = 70$, $p < .000$).

CHAPTER V

DISCUSSION

The primary purpose the current study was to validate the MSSM proposed by Flores et al., (2008) and examines the possible influences social support has on health outcomes. As well as determine if discrimination predicted health-seeking and health-risk behaviors with social support as a covariate. The current study provides only partially supports for the minority status stress model, as presented by Flores et al., (2008). Specifically, results indicated that more reported perceptions of discrimination is predictive of more reported depression, and increased reporting of chronic physical health conditions. However, data did not support Flores et al., (2008) findings, which established perceived discrimination as an additive stressor, when taking into account perceived stress. The lack of significant findings may be associated with the small sample size, which may influence the need power to reject the null hypothesis (Ellis, 2010).

While the current study did not support past findings on the unique influence of discrimination, the findings do support previous data on the relationship between perceived racial discrimination and depressive and chronic conditions. For example, experiencing chronic discrimination is strongly predictive of higher depression scores, lower self-rated physical health (Finch et al., 2001) and more internalizing of problems

(Brittian, Toomey, Gonzales, & Dumka, 2013). Future studies should include refined measures of perceived racial discrimination, which endeavor to control or adjust for personality traits, which may help to reduce the embellishment or denial of reports of discrimination. In attempt to validate the MSSM as it relates to Hispanic populations, the current study tested three other accepts of the MSSM (social support, health-seeking behaviors, and health-risk behaviors), which were not examined by Flores et al., (2008).

First, the addition of the perceived social support to the model was considered to examine the possible relationship between social support and discrimination. Social support was not significantly related to physical or psychological measures of health. Social support in the current study did not support past data on the positive influences it has on health screening behaviors, in particular health-seeking behaviors (i.e., cancer screening, physical activity) among low-income Mexican populations (Franzini et al., 2004). The current study also did not support past findings on the predictive nature of social support and acculturation level. For example, Hispanic individuals with higher acculturation rates should be associated with more perceived social support and better health outcomes (Vega et al., 1985).

Despite past evidence, there were insignificant findings associated with perceived social support and discrimination, physical health, or self-rated health. These findings are consistent with Finch et al., (2001), which found that social support only reduced the impact of discrimination by 7% in their regression model. Furthermore, the type of social support used appeared to mediate the relationship. For example, their results indicated that instrumental social support was significantly associated with health, while emotional social support was not associated with physical or mental health. Additionally, social

support was not significantly related to blood pressure despite past research, which has suggested that increased levels of social support are associated with better cardiovascular health (Holahan, Holahan, Moos, & Brennan, 1995). The mixed results found in the current data suggest that BP may not be sufficient enough measures of cardiovascular health to suggest a relationship to health. Despite the insignificant findings of social support influences on physical health in the current study, past studies have found

Second, the current study examined how perceived discrimination and health-seeking behaviors relationship were associated with psychological and physical health. While the current study did not find evidence in either direction of the regression slope to suggest that perceived discrimination was related to health-seeking behaviors. However, higher levels of acculturation were associated with positive health-seeking behaviors. Pascoe & Smart-Richman (2009) meta-review supports evidence that perceived discrimination contributes to poorer mental health through acculturative stress. Perceived discrimination can influence acculturative stress, which can moderate health-seeking behaviors. For example, lower English proficiency is associated with more acculturative stress (Torres, Driscoll & Voell, 2012). In spite of the evidence that acculturative stress and perceived discrimination, the current study did not support prior evidence of the role of discrimination, acculturation and health.

Finally, the current study examined how perceived discrimination and health-risk behaviors were associated with psychological and physical health. While there were not significant data to support past research, men in the current sample did report more alcohol use than women. These data have to be taken with caution, as high reporting of alcohol consumption may be associated with university status. For example, past studies

have found evidence that indicates that university students engage in binge drinking (Encoh, 2006). A possible reason for the insignificant findings may be associated with the current sample being of higher SES. For example, prior studies have found that higher reporting of perceived discrimination, particularly among lower SES individuals was associated with unhealthy behaviors: smoking, poor diet, and lower rates of physical activity (Fiscella, 2004). Additionally, the individual differences in internalization of discriminatory acts may influence coping strategies (Clark et al., 1999).

It's important to consider the current studies findings within certain limitations. Additionally, studies examining perceptions of discrimination and health have been conducted on university populations (Krieger et al., 2005), which may limit the validation of the pathways. Furthermore, university populations have been found to have higher concentrations of higher SES populations, thus making it difficult to exculpate salient experiences of discrimination to lower SES, less educated, and lower-wage individuals (Smith, 2001).

While the overall model did not support Flores et al., (2008) findings, the current data did support the relationship between perceived discrimination and mental health. Based on these the current studies findings, the overall construct of perceived discrimination and poorer health does support the past research. In addition to research models, policy makers should examine the MSSM influences on health outcomes by understanding how contextual factors influence health seeking and health-risk behaviors. For example, cultural orientation and gender roles should be researched to understand how these factors influence willingness to engage in positive coping behaviors. While the current study did not find much support for the main outcome variables, individual-based

interventions should consider the unequal social conditions that perceptions of discrimination influence an inequality of resources, such as access to health care and health promoting behavioral education.

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VITA

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