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THE ASSOCIATION BETWEEN RACIAL DISCRIMINATION AND DEPRESSIVE
SYMPTOMS: AN EXAMINATION OF AFRICAN AMERICAN COUPLES

A Thesis in
Human Development and Family Studies
by
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ABSTRACT

An increasing number of studies have documented African Americans' experiences with racial discrimination. These experiences have been shown to have implications for African Americans' well-being in several ways. Using a sample of 305 African American couples residing in a southern state, the present study systematically investigated the association between experiences with racial discrimination and mental health, using structural equation modeling.

The stress process theory suggests that, not only can self-concept mediate the association between stressful experiences and mental health, but it may also moderate the association between stress and mental health. Consistent with the stress process theory, experiences with racial discrimination were expected to be directly associated with the mental health of African Americans. In addition, the associations between experiences with racial discrimination and depressive symptoms were expected to be mediated by self-concept and moderated (buffered) by both self-concept and socioeconomic characteristics. More importantly, transactional associations between husbands and wives were expected.

The results partially supported the study hypotheses derived from the stress process theory. Experiences with racial discrimination were significantly and positively associated with husbands' depressive symptoms but not with wives' depressive symptoms. This association was moderated in the expected direction by self-concept, education, and family income for husbands but not for wives. The hypothesized mediating effect was not supported for husbands or wives. The hypothesis predicting

transactional associations between spouses was largely unsupported. However, husbands' experiences with racial discrimination were associated with their depressive symptoms and their depressive symptoms were, in turn, significantly associated with their wives' depressive symptoms.

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CHAPTER 1: INTRODUCTION

This study systematically investigated the association between experiences with racial discrimination and mental health among African American adults residing in a southern state. This introductory chapter is organized in the following manner. First, I discuss the significance of racial discrimination among African American adults. Second, I discuss the goals of the study. Third, I discuss the gaps and limitations in the existing literature and how the present study fills these gaps. Fourth, I explain the definitions of terms that are central to the study. Fifth, I review what is already known about the association between mental health and racial discrimination.

Statement and Significance of the Problem

Racial discrimination has been a major social issue in the United States for nearly 400 years (West, 2001). An increasing number of studies have documented that African Americans, in particular, experience racial discrimination over their life course (Brown, 2002; Feagin, 2000; William & Collins, 2001). These stressful experiences have been shown to have implications for their well-being in several ways.

Implications for Health

Social epidemiological research indicates that racial discrimination is a powerful social factor associated with poor mental health in the African American population (Brody et al., 2006; Cain & Kington, 2003; Krieger, 2000; Williams, Neighbors, & Jackson, 2003). Psychotherapists and psychiatrists report that racial discrimination is the

most prevalent problem affecting the mental health of African Americans (Landrine & Klonoff, 1996). Racial discrimination is associated not only with the development of mental health problems, but also with the erosion of psychological resources such as self-esteem and positive affect (Forman, 2003). In addition, social epidemiological research suggests that the relatively high morbidity (e.g., high prevalence rates of heart diseases, cerebrovascular diseases, malignant neoplasms, hypertension, and obesity) and the shorter life expectancy of African Americans may be partly attributed to their experiences with racial discrimination (National Center for Health Statistics, 2004; U.S. Department of Health and Human Services, 2003).

Implications for Resources and Opportunities, Services, and Social Mobility

The African American population in the United States has been subject to racial discrimination for the last four centuries (Brown, 2002; Rex, 1986; Williams & Collins, 2001; West, 2001). Research suggests that racial discrimination limits the resources and opportunities of African American children, adolescents, and adults (Geiger, 1996; Krieger, 2000; U.S. Equal Employment and Opportunity Commission, 1992). Racial discrimination, practiced by social institutions, including local government, educational, and service institutions, makes everyday life difficult for African Americans (Essed, 1996; Fix & Srtyck, 1993; Jones, 2000). For example, some policies and procedures can involve making it difficult to obtain employment (Brueckner & Zenou, 2003; Quillian, 2003); day-to-day discriminatory practices of some organizations, can involve unfair treatment when applying for jobs or looking for housing (Oliver & Shapiro, 1995; Turner et al., 1991). Moreover, racial discrimination can limit African Americans' accessibility

to higher education opportunities, health services, and social services. In particular, racial discrimination practiced in health service institutions makes it difficult for African Americans to receive proper mental and physical health care (Institute of Medicine, 2003; Mayberry, Mill, & Ofili, 2002). Ironically, discriminatory practices may hinder the ability of African Americans to receive medical attention for mental illnesses, such as depressive symptoms, which are triggered by racial discrimination. Just as racial discrimination has implications for obtaining services, it also has implications for African Americans' participation in decision-making processes in society.

Implications for Society

Racial discrimination is a major social issue in American society (Kreiger, 2000), with implications for the country's power structure. The lack of political power among African Americans has kept them out of decision-making processes at various levels. More specifically, the power difference between African Americans and European Americans has created a racial caste system (Fredrickson, 1998; Wieviorka, 1995). That is, people tend to socialize with members of their own race, which has contributed to the creation and maintenance of racial stratification. Over time, racial stratification has extended to geographical racial segregation (Jargowsky, 1997; Shaw & McKay, 1942). This is particularly true of the African American population; approximately 25% of African Americans are segregated in poor inner-city communities (Williams & Collins, 2001; Wilson, 1987).

Goals of the Study

Given the significance of the problem of racial discrimination, a growing volume of research has focused on its consequences for physical and mental health. However, the association between racial discrimination experienced by African American adults and their mental health has not been systematically explored (Williams et al., 2003). This lack of exploration may be attributed to several limitations in the existing research. First, most existing studies of racial discrimination focus on refugee populations, immigrant populations, or other racial/ethnic groups, including Southeast Asians, Koreans (Noh & Avison, 1996; Noh, Beiser, Kaspar, Hou, & Rummens, 1999) and Native Americans (Whitbeck, McMorris, Hoyt, Stubben, & LaFromboise, 2002). Second, much of the research that focuses on African Americans is limited to investigating the direct influence of racial discrimination on depressive symptoms among children and adolescents (Gibbons, Gerrard, Cleveland, Wills, & Brody, 2004; Simons, Chen, Stewart, & Brody, 2003). The studies that do focus on African American adults are often limited to inner-city communities with limited variation in socioeconomic conditions (Brown et al., 1995). Third, although existing studies have focused on the health consequences of racial discrimination, they have not systematically elucidated the intra-individual mechanisms (both mediation and moderation) through which racial discrimination exerts its influence on mental health. Fourth and finally, previous studies have not investigated whether one individual's experiences with discrimination are associated with another individual's mental health, particularly among couples. Recent reviews of family research emphasize the need to focus on transactional and reciprocal processes between husbands and wives

rather than focus on the main effects of stressful experiences on outcomes such as mental health (O'Brien, 2005).

In order to fill these gaps in the previous research, the primary goal of the present study was to systematically investigate the association between experiences with racial discrimination and mental health among African American adults—specifically, intra-individual processes and inter-individual processes between African American husbands and wives. The second goal of the present study was to investigate moderating effects. That is, I examined whether the associations between experiences with racial discrimination and mental health were moderated by the psychosocial characteristics or the gender of African American married adults.

Gaps in the Literature: Contribution of the Present Study

Research suggests that experiences with racial discrimination contribute to at least 15% of the variance in psychiatric symptoms among African American adults (Klonoff, Landrine, & Ullman, 1999). Nevertheless, of the 86 studies on the broad topic of racial discrimination and health (mental, physical, and behavioral), as of 2003, only 29 studies examined the association between racial discrimination and depressive symptoms (Williams, Neighbors, & Jackson, 2003). Therefore, this study contributes to the literature on racial discrimination and depressive symptoms by focusing on their potential association. Moreover, most existing studies of racial discrimination and depressive symptoms focus on refugee populations, immigrant populations, or other racial/ethnic groups, including Southeast Asians, Koreans (Noh & Avison, 1996; Noh, Beiser, Kaspar, Hou, & Rummens, 1999) and Native Americans (Whitbeck, McMorris, Hoyt, Stubben, &

LaFromboise, 2002). The present study contributes to the literature on these topics by focusing on African Americans and the association between racial discrimination and depressive symptoms.

Except for the previously discussed studies on African American adults, much of the research that focuses on African Americans is limited to investigating the influence of racial discrimination on depressive symptoms among children and adolescents (Gibbons, Gerrard, Cleveland, Wills, & Brody, 2004; Simons, Chen, Stewart, & Brody, 2003). Those studies that do focus on African American adults are often limited to inner-city communities with little variation in socioeconomic conditions (Brown et al., 1995) or limited to small clinical samples (Brown, 1989). Thus, the findings of these studies have limited generalizability to the non-clinical and non-urban African American population in the United States. In the present study, I used a non-clinical community sample of 305 African American couples from both urban and rural communities.

More importantly, although existing studies have focused on the health consequences of racial discrimination, they have not systematically elucidated intra-individual mechanisms through which racial discrimination exerts its influence on mental health. Especially important is that the present study examines whether self-concept mediates and moderates the association between experiences with racial discrimination and depressive symptoms. I have attempted to assess self-concept using well-established indicators such as self-esteem (Rosenberg, 1989) and mastery (Pearlin, Menaghan, & Lieberman, 1981). The present study was guided by the stress process theory (SPT) (Pearlin, Lieberman, Menaghan, & Mullan, 1981; Pearlin, 1989; Pearlin & Skaff, 1996),

which explains the intra-individual psychosocial process through which experiences with racial discrimination are associated with depressive symptoms.

Extending intra-individual processes to incorporate *inter-individual* processes, this study examines whether African American husbands' experiences with racial discrimination are associated with African American wives' depressive symptoms and vice versa. Previous studies have not investigated the inter-individual transactional mechanisms through which a spouse's experiences with racial discrimination may be associated with his or her partner's self-concept and mental health; this is illustrated with a sample of couples. *This is potentially the most important contribution of the present study to the current literature.* No known study to date has investigated such dyadic models in the context of racial discrimination.

The present study also addresses important methodological concerns. For example, a wife's depressive symptoms may be associated with her husband's depressive symptoms. I took into account such dependencies. More methodological contributions of the present study are discussed in the methodology section (chapter 3) of this dissertation.

Previous research has provided limited and mixed results regarding the moderating influences of socioeconomic status and gender on the association between racial discrimination and mental health. The present study investigates how socioeconomic characteristics and gender moderate the direct and indirect relationships between racial discrimination and depressive symptoms. Thus, using a comprehensive approach involving intra-individual, inter-individual, mediational, and moderating processes, the results of the present study are a unique contribution to the existing

literature on racial discrimination and mental health among African Americans. Before moving forward, a review of key terms is worthwhile.

Definitions: Racism and Racial Discrimination

In this section, I first discuss the broad definition of racism and types of racism in the United States. Then, I define racial discrimination as an active component of racism. Finally, focusing on the point of view of the victim, I explain how experiences with racial discrimination are assessed in the present study. Please refer to Figure 1 during this discussion.

Racism, Power, and Racial Stratification

An understanding of the interrelationship between *racism and power* is essential for a clear understanding of race relations in America (Levine, 1985; Wilson, 1973). Moreover, power plays a significant role in establishing a social structure; power can facilitate racially discriminatory behavior. When a racial group holding power establishes a social system that favors their group, they create a society that is *racially stratified*. The group holding power may use norms based on cultural racism and biological racism (racial discrimination based on beliefs about cultural and biological superiority) to establish racial stratification. Conversely, *racial stratification* may be used to establish racist norms (Jargowsky, 1997; Shaw & McKay, 1942; Williams & Collins, 2001).

Racist Ideology and Racism

The present study adapted Wilson's (1973) definition of racism. He defines *racism* as encompassing racially discriminatory behaviors—that is, domination, exploitation, or unequal treatment—based on a racist ideology. A racist ideology is the belief in the cultural and/or biological inferiority of a group (see Figure 1). Thus, racism incorporates not only a racist ideology (beliefs) but also racial discrimination (behaviors/acts), which includes discriminatory events, practices, actions, and expressions aimed at particular groups (Brown, 2003; Jones, 2000; Rex, 1986).

Researchers focusing on racism have identified institutional and individual racism as the two main types through which racial discrimination against African Americans operates (Forman, 2003; Mays et al., 2007; Turner et al., 1995). As shown in Figure 1 (horizontal bi-directional arrow between institutional racism and individual racism), one type of racism can operate through another. That is, individual racism can be shaped by institutional racism and/or institutional racism can be shaped by individual racism (Forman, 2003). Racial discrimination as discussed in the present study involves individual experiences with racial discrimination that may have stemmed from both institutional and individual racism. The present study focused on the point of view of the victim and his/her experiences with racial discrimination across various realms of life.

Cultural and Biological Racism

Cultural and biological racism is racial discrimination based on beliefs about cultural and biological superiority. It can occur in institutions and individuals (Wilson, 1973). Cultural and biological racism has hindered the participation of African

Americans in various institutions such as those of higher education. The present study attempted to capture African Americans' experiences with both institutional (e.g., unfair treatment, being excluded) and individual racial discrimination (e.g., personal attacks).

Institutional Racism

Institutional racism is described as the day-to-day racial discrimination found in institutions based on a socially-structured racist ideology (Forman, 2003; Wilson, 1973). That is, institutional racism is embedded in customs, practices, and laws (Jones, 2000). For example, an institution may have a practice of not hiring African Americans. Institutions may display unconscious, hidden, or indirect racism (Kaufman, 2001; Rex, 1986). That is, the individuals making up the institutions may not necessarily possess a racist ideology even though their practices could be interpreted as racist. For example, the individuals implementing the practice of not hiring African Americans in an institution may simply be obligated to the institutional procedure. Nevertheless, the institution's racial discrimination policies may be evident through the under-representation of oppressed racial groups. Thus, institutions discriminate directly as a racist group and indirectly through individual acts (Forman, 2003). Institutional racial discrimination can be overt or covert (Noh & Kaspar, 2003; Wieviorka, 1995). Research suggests that, for the most part, institutional racism has replaced discriminatory personal attacks (Murphy & Choi, 1997; Pincus, 1996).

Individual Racism

Individual racism involves committing discriminatory acts based on a racist ideology—personal beliefs that a group is culturally and/or biologically inferior, and thus should be racially discriminated against and exploited (Burris, 1979; Wilson, 1973). That is, racist individuals include those who discriminate according to race or ethnicity by causing racist events (Bhugra & Ayonrinde, 2001; Corlett, 2003). The *racist event* involves several dimensions (Bulmer & Solomos, 2004), including the perpetrator, the victim, the immediate context, and the long-term consequences of the racist event. The perpetrator of racism operates with a racist ideology. If social and political power is bestowed on a racist instigator, racist ideology can translate to racially discriminatory behavior, such as turning down a job application from an individual based upon that individual's race. The victim is the subject of the racist ideology and behavior.

Overt and Subtle Racism

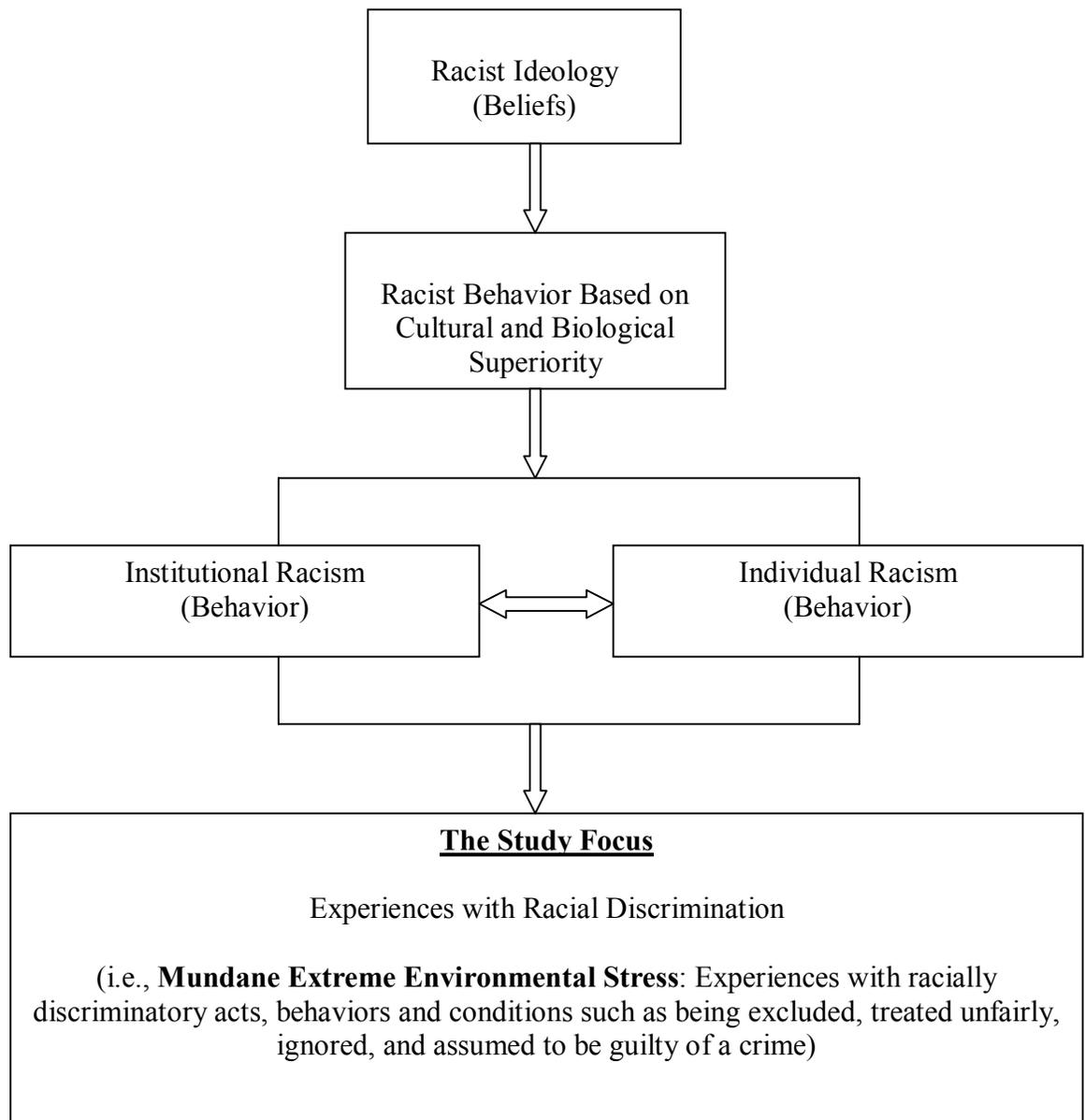
Racist practices can be *overt or covert (subtle)*. According to Wilson (1973), overt racist norms reinforce already existing racist practices and facilitate the development of new racist practices. *Subtle racism*, also called *symbolic racism* (Wieviorka, 1995), refers to racial tensions that were once expressed overtly but which are now being expressed subtly. In recent years, there has been a shift to more covert and subtle forms of racism towards racial minorities (Noh & Kaspar, 2007). The present study attempted to capture African American experiences with both subtle and overt racism through their reports of recurring experiences with racial discrimination.

Racial Discrimination as Related to the Present Study

As previously discussed, if racism is defined broadly, it incorporates not only beliefs but also behaviors. Think of the concept of racism as an umbrella under which are both racist ideology and racial discrimination. Within the concept of racism, racial discrimination can be considered a behavior (individual or institutional; overt or subtle) influenced by a racist ideology. For example, denying African Americans employment based on (a) the belief that European-Americans are superior and/or (b) negative attitudes about African Americans, is indicative of racist ideology (beliefs) leading to racial discrimination (behavior).

In the present study, I focused on victims' experiences with racial discrimination (i.e., adult African Americans' experiences) regardless of the source of racial discrimination or the type of racist experience (i.e., whether institutional or individual, overt or subtle). Examples of racial discrimination include daily discriminatory conditions and encounters (Jones, 2000). Figure 1 depicts the study's major concepts, placing racist ideology and racial discrimination experiences within a broad definition of racism. The figure shows that racist ideology consisting of racist beliefs and attitudes (regarding cultural and biological superiority) can lead to experiences with racial discrimination.

Figure 1. Operationalizing racial discrimination in the present study.



As shown in Figure 1, this study focused on recurring experiences with racial discrimination stemming from various levels and various types of racism. Racial discrimination can occur through institutions and/or individuals as ‘micro-aggressions.’ Micro-aggressions refer to being (a) ignored, (b) treated as inferior, (c) insulted, (d) excluded, (e) singled out, (f) ridiculed, and (g) presumed guilty of anything negative.

Pierce (1974), Peters and Massey (1983), and Carroll (1998) posit that, as daily experiences with racial discrimination and micro-aggressions accumulate, African Americans feel chronic stress. They labeled this type of stress *Mundane Extreme Environmental Stress (MEES)*: mundane, because it is common in the lives of racial minorities; extreme, because of the severe impact on mental health; and environmental, because it arises from the environment (Carroll). For example, both individual aggressive acts (e.g., being followed in a store) and institutionalized aggressive acts (e.g., unequal employment opportunities, unequal housing opportunities) contribute to MEES (Carroll, 1998). The present study captures examples of African Americans' chronic stressful experiences with racial discrimination through their reports of recurring experiences with micro-aggressions.

Association Between Racial Discrimination and Health

The present study focuses on health consequences of racial discrimination among African Americans. Thus, I begin this section by discussing disparities in physical and mental health between African Americans and European Americans in the United States. Next, I discuss the potential independent influences of socioeconomic status and racial discrimination on the health of African Americans.

Racial Disparities in Physical Health

Research suggests a strong comorbidity and reciprocal relation between physical and mental health (American Psychological Association, 2003; National Institute of Mental Health, 1999). Compared with European Americans, African Americans suffer a disproportionate number of mental and physical illnesses (Franks, Muennig, Lubetkin, &

Jia, 2006). Moreover, African Americans have a greater chance of experiencing ill health throughout life (Mays, Cochran & Barnes, 2007; Ferraro & Farmer, 1996; Jackson, 2005; Kreiger, 2000). The health of African Americans also declines at a faster rate than that of European Americans across the life course. Table 1 shows the higher prevalence of various causes of death among African Americans; the overall death rate of African Americans is 32% higher than that of European Americans after controlling for age. Death rates associated with highly prevalent diseases such as heart disease (28%) and malignant neoplasms (26%) are significantly higher among African Americans than among European Americans. The homicide rate of African Americans is nearly five times higher than that of European Americans. In addition, studies report a higher prevalence of obesity among African Americans than European Americans (Wickrama, Wickrama, & Bryant, 2006). Infant mortality rates are also higher among African Americans than European Americans (Jackson, 2005). Although such physical health disparities exist, the present study focuses on mental health consequences of racial discrimination.

Table 1.

Comparing Races in Ratios of Age-Adjusted Death Rates per 100,000 for Selected Causes of Death in the Year 2000

Causes of Death	Ratio of African Americans Compared to European Americans		
	Death Rate Euro American	Death Rate African American	Ratio (African Am: Euro Am)
All causes	849.8	1121.7	1.32
Heart diseases	253.4	324.3	1.28
Cerebrovascular diseases	58.8	81.7	1.39
Malignant neoplasm	197.2	248.4	1.26
Chronic respiratory illness	46.0	31.28	0.68
Influenza	23.5	25.38	1.08
Chronic liver disease	9.6	9.4	.98
Diabetes mellitus	22.8	49.4	2.17
HIV	2.8	23.2	8.32
Unintentional injuries	35.1	37.5	1.07
Homicide	3.6	20.4	5.69

Source: Adapted from The U. S. Department of Health and Human Services (2003), *Health, United States, 2003*, Washington, D. C: U.S. Government Printing Office, Table 29, & The American Sociological Series on How Race and Ethnicity Matter, July 2005.

Notes: Ratios are obtained by dividing the age-adjusted death rate of African Americans by the rate of European Americans.

Although the life expectancy of all races increased from 70.8 years in 1970 to 77.3 years in 2002, African Americans still have lower life expectancies than European Americans (see Table 2).

Table 2

Life Expectancy at Birth by Race and Gender

Year	All Races	European American	African American
1970	70.8	71.7	64.1
2002	77.3	77.7	72.3

Source: Adapted from The National Center for Health Statistics (2004), *Health, United States*, 2004, with Chartbook on Trends in the Health Americans, Hyattsville, MD, and The American Sociological Series on How Race and Ethnicity Matter (2005).

Racial Disparities in Mental Health

A number of previous studies report mental health disadvantages of African Americans compared with European Americans. Forman (2003) reports a higher level of *depressive symptoms* (not the disorder) among African American adults after controlling for socioeconomic characteristics. This pattern has been observed by researchers in age-heterogeneous samples (Amato, 1991; Myres et al., 2002), in samples restricted to adults (Blazer et al., 1998), and in samples restricted to adolescents (Wickrama, Noh, & Bryant, 2004). In contrast, findings with regard to racial disparities in *psychiatric disorders* are mixed. Some studies report a higher prevalence of psychiatric disorders among African Americans than among European Americans, and others report no race disparities in

psychiatric disorders, particularly after controlling for socioeconomic differences (Brown, William, Eaton, & Sussman, 1994; Williams, 2007).

Table 3 depicts the greater prevalence of phobic disorders, schizophrenia, and somatization among African Americans. Although I have not examined racial differences in psychological disorders in the present study (which focuses on depressive symptoms), I provide this race-comparative information in order to underscore the mental health disadvantage of African Americans with regard to the aforementioned disorders.

Table 3

Comparing Rates of Psychiatric Symptoms Between Ethnicities

	<u>Current</u>		<u>Lifetime</u>	
	African American	European American	African American	European American
Psychiatric Disorder	(n = 3570)	(n = 891)	(n = 3434)	(n = 668)
Schizophrenia	1.5	0.9	2.1	1.4
Panic disorder	1.0	0.9	2.1	1.4
Phobic disorder	16.2	9.1	23.4	9.7
Somatization	0.4	0.1	0.5	0.1

Source: Robbins, L.N and Reigier, D. A, Eds, (1991), *The Epidemiological Catchment Area Study*, New York: Free Press.

SES and African Americans' Mental Health

Certain mental health issues such as depressive symptoms, are socially mediated (Dohrenwend et al., 1992). Social epidemiological research has consistently documented

a strong association between SES and physical and mental health problems, resulting in a SES-Health Gradient (Adler et al., 1994; Chen, Matthews, & Boyce, 2002; Link & Phelan, 1995). Compared to higher SES individuals, lower SES individuals possess fewer resources and experience more stressful events which contribute to mental and physical health disparities (Booth, Johnson, & Granger, 1999; Booth et al., 1989; Pearlin, 1989; Turner, Wheaton, & Lloyd, 1995). African Americans generally fall in the lower SES levels compared to European Americans. Thus, African Americans may report higher levels of depressive symptoms/distress than European Americans because they are exposed to greater stress—stress associated with their lower SES. In support of this school of thought, some studies suggest that SES explains the racial differences in mental health (Biafora, 1995; Warheit, Holzer, & Arey, 1975; Williams, Yu, Jackson, & Anderson, 1997).

In contrast, other researchers provide different findings regarding the association between SES and the mental health disadvantages of African Americans when compared with European Americans. These studies report that racial disparities in psychiatric disorders cannot be fully explained by socioeconomic differences alone (Amato, 1991; Brown et al., 1990). For example, findings from an urban community-based field study (Brown et al.) indicate that, even after controlling for socioeconomic characteristics, the prevalence rates of anxiety disorders are still higher among African Americans when compared with European Americans. These mixed findings of previous studies can be attributed to several factors such as differences in measures, sample characteristics, and analytical techniques.

Racial Discrimination: An Independent Cause of Health Disadvantage

Previous studies suggest that African Americans' experiences with racial discrimination do explain racial disparities in health. In their study of European Americans and African Americans, Kessler, Michelson, and Williams (1999) found that lower levels of SES and racial discrimination account for unique variance in mental health. Similarly, in a longitudinal study using a sample of African American women, Schulz et al. (2006) found that daily experiences with racial discrimination were associated with greater depressive symptoms and poorer self-reports of health, after controlling for education and income levels. Thus, race is not simply a proxy for a socially structured socioeconomic condition, but rather, race-associated experiences such as experiences with racial discrimination may have independent effects on feelings of depression among African Americans in the United States (Biafora, 1995). In the present study, I examine the direct and indirect association between experiences with racial discrimination and depressive symptoms. I examine various markers of SES, including education and family income.^[0]

African Americans report a high level of recurring experiences with racial discrimination in the form of various 'micro-aggressions'—examples of which were provided earlier in this document (Carroll, 1998; Pierce, 1974; Schulz et al., 2000). Previous studies also suggest that reports of recurring experiences with racial discrimination operate as a more proximal predictor of depressive symptoms than do reports of experiences with discrimination over the lifetime (Mossakowski, 2003; Schulz, 2006).

The present study maintains that the influence of socioeconomic adversity on the health disadvantages of African Americans observed in previous studies can be interpreted as the influence of discriminatory policies and programs at the national, state, county, city, and neighborhood levels. As previously discussed, African Americans have been subject to social stratification and social and economic deprivations as a result of these policies and programs of local, state, and federal institutions (Jargowsky, 1997; Shaw & McKay, 1942; Williams & Collins, 2001). Racial stratification (i.e., a social system that does not favor African Americans due to their lack of power) and adverse social and economic conditions may impair mental health through greater stressful encounters and emotional suffering (Brown, 2003).

Racial Discrimination and SES

Research suggests that there may be interactive effects between experiences with racial discrimination and socioeconomic status (Ulbrich et al., 1989). Previous studies show that the influence of experiences with racial discrimination on health may be greater for lower SES individuals (Kessler & Neighbors, 1987). This is because lower SES environments increase an individual's *vulnerability* to the effects of racial discrimination by eroding coping resources, after controlling for marital status and age (Gallo & Matthews, 2003; McLeod & Kessler, 1990). In contrast, some studies report no differential influence of race among either low or high SES individuals (Cockerham, 1990), implying that the effects of racial discrimination do not vary by SES. In sum, previous research provides mixed findings about the moderating influence of SES on racial discrimination. As mentioned previously, this may be due to limitations in study

design. The present study investigates how the association between experiences with racial discrimination and depressive symptoms varies with SES by examining the differences in exposure (level of experiences with racial discrimination) and the differences in vulnerability (strength of the association between experiences with racial discrimination and mental health) between low and high SES groups.

The present study also examines gender differences in depressive symptoms. In particular, previous studies suggest that the greater vulnerability of women to stressful circumstances may explain gender differences in depressive symptoms (Conger, Lorenz, Elder, Simons, & Ge, 1993; Kessler & Essex, 1982). Researchers argue that more vulnerable groups have fewer social and individual resources that can be used to remove or lessen the negative effects of stressful circumstances (George & Lynch, 2003; Pearlin et al., 2005). This may be true for African American women who, for example, report a higher prevalence of stress-related health outcomes, such as hypertension (Kreiger, 1990).

Racial Discrimination and Depressive Symptoms

Both perceived and actual experiences with racial discrimination adversely affect mental health (Mays et al., 2007). Schulz et al. (2006) showed that perceived experiences with daily discrimination are associated with depressive symptoms over time among African American women, independent of SES factors such as education and income. A study of male and female African Americans revealed that perceptions of oppression predicted greater psychological distress that occurred 13 years later, after controlling for education, income, and time 1 distress (Jackson, Brown, & Williams, 1996).

Furthermore, they found a cumulative effect of racial discrimination on mental and physical health through the proliferation of additional stressors. Kessler et al's (1999) study of major lifetime experiences and day-to-day experiences with racial discrimination revealed significant associations between discrimination and symptoms of depression, anxiety, and distress among African Americans. Analyses of both cross-sectional and longitudinal data suggest that African Americans' experiences with racial discrimination are associated with psychological distress, after controlling for financial security and education (Brown, Williams, & Jackson, 2000). Another study similarly found that experiences with racial discrimination among African American adults were associated with depressive symptoms after controlling for racial identity and SES (Sellers, Caldwell, & Schmeelk-Cone, 2003). A comprehensive assessment of racial discrimination from across the life course has proven to be highly reliable when used with a sample of African American adults (Landrine & Klonoff, 1996). This measure was significantly associated with psychological distress, which included anxiety and depressive symptoms. However, as previously noted, the generalizability of these studies is limited due to the limited range in age and the focus on predominantly urban samples (Brown et al., 1995).

Previous studies have also shown that experiences with racial discrimination can add to mental health problems that may already be present because of experiences with age and gender discrimination (Stuber, Galea, Ahern, Blaney, & Fuller, 2003).

Experiences with racial discrimination can also interact with other existing stressors (i.e., economic deprivation, job loss) producing adverse multiplicative effects on psychological functioning among African Americans (Murry, Brown, & Brody, 2001).

Associations between racial discrimination and depressive symptoms have been documented among minority populations other than African Americans. For example, the positive associations between experiences with racial discrimination and depressive symptoms among African Americans have been replicated among Southeast Asian refugees in Canada (Noh et al., 1999). Experiences with racial discrimination over a lifetime have also been shown to be associated with depressive symptoms in a sample of Filipino-Americans (Mossakowski, 2003). Studies involving as many as seven immigrant groups in Europe also showed an association between psychological distress (i.e., depressive symptoms and anxiety symptoms) and experiences with racial discrimination (Liebkind & Jasinskaja-Lahti, 2000). Associations between experiences with racial discrimination and depressive symptoms were also reported for a sample of Native Americans (Whitbeck et al., 2002), and for a sample of Mexican Americans (Finch, Kolody, & Vega, 2000), after controlling for education and income. Experience with discrimination at work in a sample of Hispanic women was associated with mental health, including psychological distress after controlling for family and demographic characteristics (Amaro, Russo, & Johnson, 1987).

Racial discrimination may influence mental health in several ways (Williams & Williams-Morris, 2000). First, institutional racism can segregate African Americans into lower socioeconomic classes, and in those lower classes they may encounter more frequent and more intense stressful events and conditions, all of which can negatively influence mental health. Second, experiences with racial discrimination have been found to activate physiological and psychological processes, which lead to mental illness such as depression (Mays et al., 2007). Third, *internalized racism* or believing that racist

remarks about one's own race are true can lead to decreased mental health by having a negative impact on one's view of self—in other words, by having a negative impact on one's self-concept (Jones, 2000). Experiences with racial discrimination have been shown to decrease psychological well-being as measured by a sense of growth, mastery, autonomy, and self-acceptance, after controlling for education and employment status (Ryff, Keyes, & Hughes, 2003).

To understand the intra-individual psychological process between subtle and overt forms of racial discrimination and depressive symptoms, Noh and Kaspar (2007) investigated the mediating effects of emotional and cognitive processes. They found that the effect of subtle racial discrimination on depressive symptoms is completely mediated by the individual's cognitive appraisal of the experience—meaning that if an individual felt that he or she was excluded from an activity because of his race, that feeling of exclusion was associated with greater depressive symptoms. Based on their findings, Noh et al. argue that when perceived unfairness is subtle and less explicit, the uncertainty of the situation might call for a more active and difficult appraisal of the event or situation; whereas appraisals of overt racial discrimination might involve fewer cognitive demands because the nature of the experience is less ambiguous. Noh et al. demonstrated that perceived subtle racial discrimination exerts stronger influences on depressive symptoms than overt racial discrimination. They also showed that overt racial discrimination negatively influences positive affect. However, we know very little about such intra-individual psychological processes. In particular, we know very little about how individual beliefs about 'self-concept' are involved in the association between racial discrimination and mental health.

The present study focuses on intra-individual processes using well-established measures of mastery and self-esteem as indicators for a latent construct called self-concept (Pearlin et al., 1981). Self-concept was expected to mediate the association between experiences with racial discrimination and depressive symptoms. As described in more detail later, the use of multiple indicators allowed for correcting coefficients for attenuation. This yields more accurate regression coefficients (Bollen, 1989).

Individual Differences and Racial Discrimination

There may be individual differences within a racial group regarding experiences with racial discrimination (Kessler et al., 1999). For example, overt experiences with racial discrimination were more common among individuals who were (a) younger, (b) never married, and (c) highly educated, whereas, day-to-day, minor experiences with racial discrimination were more common among lower income individuals (Kessler et al., 1999; Lanz, House, Mero, & Williams, 2005; Turner et al., 1995).

The findings from the present study may make a unique contribution to the literature because the sample for the present study has substantial variation in individual characteristics such as education and family income. This study also allowed me to examine gender differences with regard to (a) levels of exposure to racial discrimination and (b) the association between racial discrimination and depressive symptoms.

Physical/Mental Health Problems and Racial Discrimination

Racial discrimination can influence the mental health of African Americans through its influence on physical health. As previously indicated, racial discrimination

may influence the physical health problems of African Americans. Clinical research suggests that individuals experiencing chronic stress produce excessive cortisol, which may, in turn, produce a sustained level of elevated blood pressure or hypertension (Harvard Medical School Publications Group, 1998). In addition, this hormonal process contributes to immune changes that might alter a person's susceptibility to immune-mediated disease (Herbert et al., 1994). Physical health problems may contribute to mental health problems both directly and indirectly in several ways. First, internalized problems such as depressive symptoms may be caused physiologically by physical illness itself or through side effects from medications used to treat a disease. Second, the degree of functional impairment, predictability of disease course, and change in physical appearance may contribute to mental health problems (Lewinsohn et al. 1996; U.S. Surgeon General, 2007). Experiences with racial discrimination have also been shown to influence depressive symptoms among African American youth over time (Brody et al., 2006). The present study focuses on the association between experiences with racial discrimination, self-concept, and mental health (specifically, depressive symptoms) of African American adults.

CHAPTER 2: THEORETICAL FRAMEWORK

In the previous chapter, I noted that the primary goal of the present study was to systematically investigate the association between experiences with racial discrimination and mental health among African American husbands and wives. This investigation includes both intra-individual processes and transactional associations between African American husbands and wives.

Experiences with Racial Discrimination and Transactional Dyadic Associations

Transactional influences between husbands and wives are a central theme in a dyadic stress process. Transactional influences may occur through shared feelings and beliefs, and through behaviors and intimate interactions between husbands and wives. For example, individual experiences with racial discrimination may become shared in the case of a spouse who tells his or her partner about a discriminatory experience or event. In this way, a spouse's experience may influence his/her partner's self-concept and depressive symptoms.

Mood Spillover and Transactional Dyadic Associations

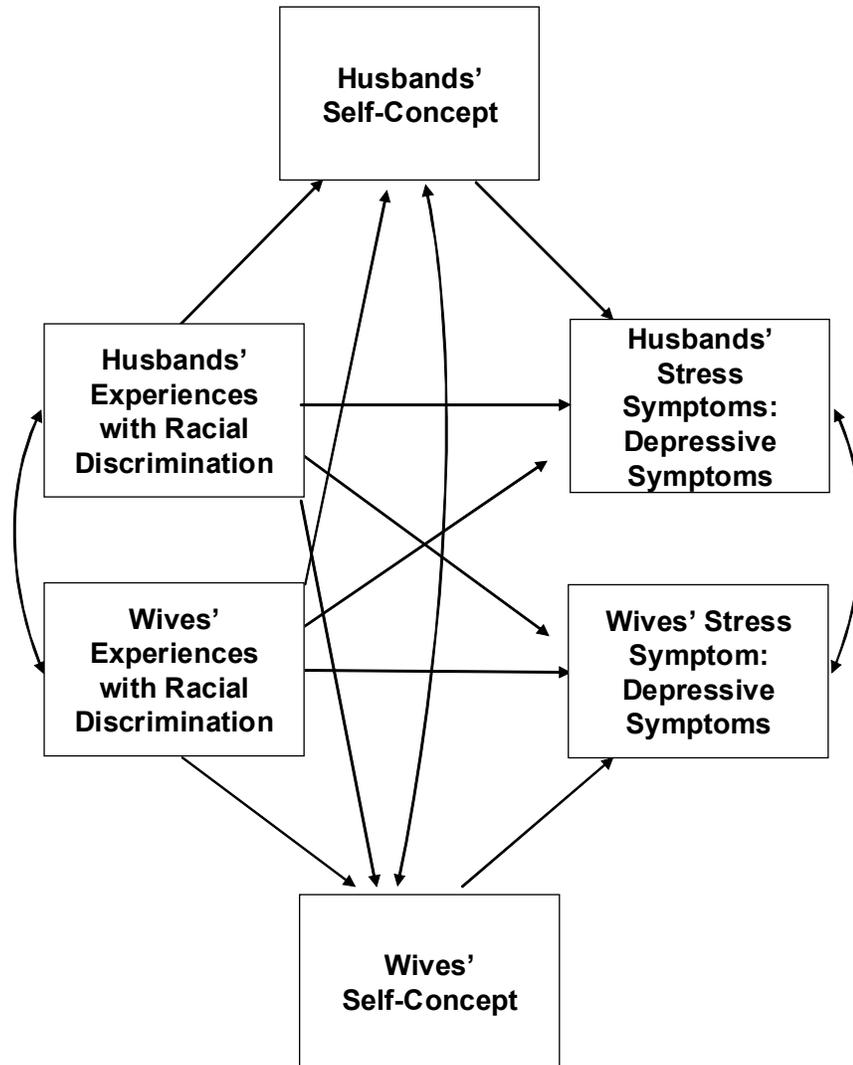
Partners in dyads may also influence one another through mood spillover (Meneghan, 1991). According to this notion, negative (or positive) experiences outside the home will influence an individual's mood inside the home. Menaghan posits that there is a cascading chain of events, starting with the stressful experience. Negative moods and feelings generated by negative experiences carry over and make one's behavioral interactions less positive. More experiences with discrimination may contribute to depressive feelings of both the spouse and partner (see Figure 2). For

example, low-quality interpersonal interactions at work have emotional consequences that can negatively influence marital interactions (Menaghan, 1991).

Studies have also shown that negative mood spillovers—from the outside environment to the home environment—occur more often than positive mood spillovers (Williams & Alliger, 1994). Thus, a spouse's experiences with racial discrimination outside the home may result in a negative mood, which spills over into the home, thereby affecting the self-concept and depressive symptoms of both the spouse and/or his/her partner.

Moreover, the ecological perspective (Bronfenbrenner, 1986) contends that individuals are embedded in contexts such as family and community. Thus, there may be a contextual effect of aggregated experiences with racial discrimination (at the family and community levels) on individual mental health. Such contextual associations and intimacy between spouse and partner would also produce dependencies and reciprocities between the two in terms of self-concept and depressive symptoms.

Figure 2. General Study Model (All shown associations are tested in the present study).



The Stress Process Theory: Explaining Intra-individual Processes

The present study relied on the stress process theory (Pearlin, 1989; Pearlin, Lieberman, Menaghan & Mullan, 1981; Pearlin & Skaff, 1996) to describe the intra-individual psychosocial process through which experiences with racial discrimination are associated with depressive symptoms. The stress process theory provides a theoretical framework for the direct association between racial discrimination and mental health, and a framework for the indirect association (between discrimination and health) through potential mediators such as psychological resources (self-concept). The stress process theory also provides a flexible theoretical framework that can be used to facilitate an investigation of the effects of potential moderators (resources or vulnerabilities, including socioeconomic status, and gender). Thus, I was able to investigate how the association between experiences with racial discrimination and depressive symptoms vary by (a) level of self-concept, (b) socioeconomic status, and (c) gender. Finally, the stress process theory can be extended from its individual-stress focus to a shared-stress focus in order to investigate previously discussed transactional associations between racial discrimination and depressive symptoms in married pairs—for example, between a husband's experiences with racial discrimination and a wife's depressive symptoms.

The stress process theory combines the often separately studied concepts of (a) stressful experiences, (b) self-concept, and (c) stress symptoms or depressive symptoms as three components of the etiological process of stress (see Figure 3). In the pages that follow, I discuss these three constructs by referring to relevant theoretical and empirical literature. Next, I discuss the role of self-concept as a mediator that links stressful

experiences to stress symptoms. Then I discuss the potential moderating role of self-concept itself and the potential moderating roles of socioeconomic status and gender.

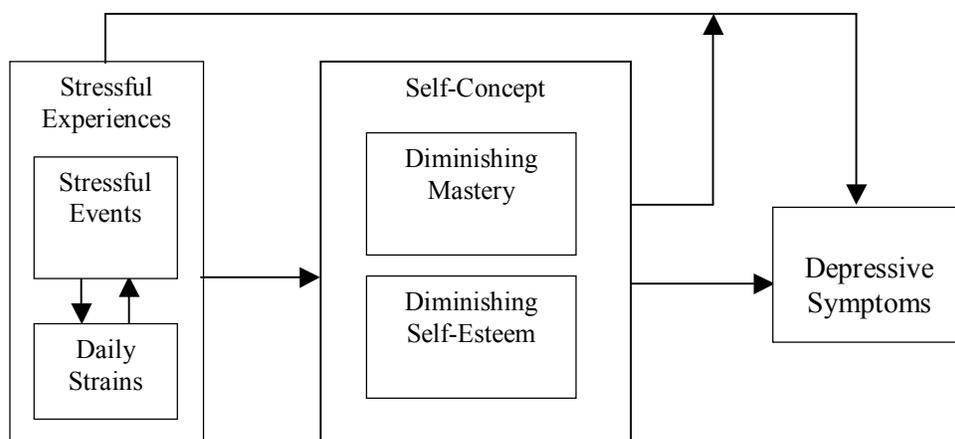


Figure 3. The Etiological Process of Stress (Pearlin et al., 1981; 2005).

Stressful Experiences

The first component of the stress process, *stressful experiences*, is thought to be comprised of two types of stressors—stressful events and daily strains—both of which are equally undesirable, burdensome, and threatening (Pearlin, 1989). Stressful events are non-normative discrete circumstances, whereas daily strains are enduring or recurrent stressful circumstances. For example, experiencing racially motivated violence is a stressful event, whereas being excluded from group activities on a regular basis because of race is a daily strain. Daily strains that cut across an individual’s interactions with his or her environment (i.e., racial discrimination) are referred to as *ambient strains* (Pearlin & Skaff, 1996). Stressful events and daily strains may combine to create an especially unpleasant experience. For example, experiencing stressful discriminatory events and daily discriminatory strains in the workplace combine to create a discriminatory work environment, which gives subjective meaning to the events and daily strains occurring

there. For example, having little authority at the workplace everyday as a result of race is a daily strain, while being turned down for a promotion due to race is a racially discriminatory event.

Stressful events and daily strains can be experienced in several ways. First, each may act as an independent stressor that can have a direct impact on mental health. Second, stressful events can have an indirect psychological impact through their influence on daily strains. This may occur in two ways: Stressful events might either multiply the effects of preexisting daily strains or lead an individual to perceive daily strains as stressful. In the latter case, for example, a job loss may result in a shift in perception whereby preexisting daily strains with racial discrimination become viewed as especially stressful. Finally, persistent daily strains may lead to a stressful event. For example, continued experiences with racial discrimination at the workplace can lead to voluntary or involuntary job loss. Thus, according to the stress process model, stressful events are often interconnected with daily strains in an individual's experiences (Pearlin et al., 1981; Pearlin, 1989; Pearlin, Scheiman, Fazio, & Meersman, 2005).

I contend that the notion of 'stressful events and daily strain' in the stress process perspective is consistent with the notion of 'recurring experiences with micro-aggressions' in the MEES perspective. That is, over time, African Americans experience discriminatory events and daily strains as recurring micro-aggressions. Many researchers who focus on racial discrimination tend to identify the recurring and unending experiences with racial discrimination over a life course as Mundane Extreme Environmental Stress (Carroll, 1998; Peters & Massey, 1983; Pierce, 1974).

As explained earlier, MEES is mundane, because it is common in the lives of racial minorities; extreme, because of its severe impact on mental health; and environmental, because it arises from the environment (Carroll, 1998). African Americans encounter similar recurring and ceaseless experiences with racial discrimination over the life course, in every realm of life, from work-life to personal life (e.g., shopping). Throughout life, African Americans experience psychological pain as a result of past and present experiences with discrimination and as a result of having to anticipate future experiences with racial discrimination (Pierce, 1974).

Thus, MEES includes mundane stressful experiences with racial discrimination that act as micro-aggressions (Carroll, 1998). Peters and Massey (1983) suggest that the notion of mundane extreme environmental stress is best operationalized as the experiences of African Americans with racial discrimination—specifically, in interpersonal interactions (e.g., being treated as a suspect, being treated as inferior, being singled out, being ignored) because such experiences are a daily life strain for many African Americans. Thus, MEES reflects chronic stress. The present study depicts African American MEES through African Americans' reports of recurring experiences with racial discrimination.

Self-Concept

Experiences with racial discrimination may erode psychological resources such as self-concept. *Self-concept* is the second component in the etiological process of stress as conceptualized by proponents of the stress process theory (Pearlin, 1989; Pearlin et al., 1981). The components of self-concept—self-esteem and mastery—are thought to play a

central role in the stress process, linking stressful life experiences and depressive symptoms. Self-concept is sometimes viewed as a relatively stable though not immutable trait by psychologists (Donnellan, Trzesniewski, Conger, & Conger, 2007); however, there is evidence to suggest the contrary. For example, the stress process theory contends that daily strains and stressful events can cause an *antecedent process* involving diminished positive self-concept, which, in turn, can result in the emergence of depressive symptoms. That is, the experience of stress initiates a cognitive process of self-devaluation—eroding positive beliefs about self, such as self-esteem and mastery. This process may occur when individuals repeatedly experience failures and an inability to change their undesirable life conditions. I discuss this process separately for self-esteem and mastery in relation to African Americans' experiences with racial discrimination in the paragraphs that follow.

Self-Esteem

Self-esteem is comprised of feelings such as self-acceptance, self-worth, and self-respect (Crocher & Major, 1989; Rosenberg, 1965; 1989). An increase in experiences with racial discrimination has been shown to erode self-esteem (Ryff et al., 2003). Previous studies provide empirical evidence for this association among different racial/ethnic groups. Corning (2002) found that, in a sample of African American women, experiences with discrimination were associated with a decrease in self-esteem or global self-worth. Using a sample of Arab Americans, Moradid and Hasan (2004) found that the experiences with racial discrimination were also associated with a decrease in self-esteem.

Previous research uses three theoretical notions to explain the erosion of one's self-esteem as a result of experiences with racial discrimination: *reflected appraisal*, *social comparisons*, and *self-evaluation*. Consistent with the *reflected appraisal* principle (Rosenberg, 1979), a person's self-esteem is a product of how that person believes others see him/her. The sense of self is affected by one's interactions with others (Cooley, 1902). Roberts and Monroe (1992) reported that individuals rely on the approval of significant others to maintain their self-esteem. When external sources of self-worth are present, individuals are shown to have a normal level of self-esteem, but when external sources of self-worth are lost, individuals' self-esteem erodes. This suggests that African Americans may internalize the negative manner in which others evaluate them. This, in turn, may affect their sense of self.

According to the *social comparisons* perspective (Festinger, 1954), self-esteem is a consequence of individuals' propensity to compare themselves with others and make positive or negative self-evaluations based on such comparisons. This perspective suggests that African Americans, who often experience racial discrimination when, for example—trying to achieve high socioeconomic status, may make negative self-evaluations when they experience greater barriers due to racial discrimination. The feelings emanating from such recognition could contribute to lower self-esteem (Festinger).

The *self-evaluation* notion (Bem, 1967) suggests that self-esteem results from evaluating one's own successes and failures. Although African Americans pursue goals valued or set by American society in general, they may find it difficult to achieve these goals because of racial discrimination. In a society that places great value on

achievement, failures can prompt harsh self-evaluations that include the developments of negative views of self (Pearlin et al., 2005).

Related to reflected-appraisal and self-evaluation, a recent review of psychological studies by Mays et al. (2007) contends that individuals are not passive recipients of information. For example, self-regulation and cognitive processes play a large role in processing information (Baumeister et al., 2005). Self-regulation includes cognitive control, emotion and affect regulation, as well as the maintenance of motivational drive. Self-regulation has been shown to increase an individual's retention of social information about his or her experiences with discrimination (Gardner et al., 2000).

Regardless of the level of self-regulation, Gardner et al. (2000) showed that individuals who experience social rejection such as experiences with racial discrimination have greater recall of the event than individuals who experienced social acceptance. Such negative aspects of social rejection are permanent in the memory for the individual as a source of potential future harm and avoidance. Studies also suggest that cognitive appraisal of negative experiences such as those with racial discrimination occur at multiple levels (Wheeler & Fiske, 2005). Mays et al. (2007) contend that individuals who have been rejected as a result of racial discrimination may have heightened surveillance for negative social cues that resemble racial discrimination compared with individuals who are socially accepted. Previous studies also suggest that individuals who experience racial discrimination fall into a state of vigilant anticipation, awaiting the next occurrence of racial discrimination (Pearlin et al., 2005). I contend that this stressful psychological

state of an individual erodes his or her beliefs about self-acceptance and worth. Such an impaired self-concept may contribute to depressive symptoms.

Mastery

Beliefs about mastery refer to a general sense of control (Pearlin & Skaff, 1996). Thus, the occurrence of uncontrollable stressful experiences—as with racial discrimination—may lead to the diminishing of mastery. Previous studies provide empirical evidence of the detrimental influence of racial discrimination on a sense of mastery among ethnic/racial minority groups. For example, experiences of discriminatory events were found to erode mastery in a sample of older African Americans (Krause & Van Tran, 1989). Broman, Mavadat, and Hsu (2000) reported that experiences with racial discrimination while working, shopping, or interacting with the police, all decreased mastery and that most of these experiences increased psychological distress among African Americans. Using a sample of *Latinos*, Moradi and Risco (2006) showed that experiences with racial discrimination are indirectly associated with psychological distress via mastery/control. Moreover, they found that mastery/control partially mediates the association between experiences with racial discrimination and psychological distress. In a study involving *Arab Americans* (Moradi & Hasan, 2004), experiences with racial discrimination were associated with greater psychological distress, both directly and indirectly (the latter by decreasing environmental mastery/personal control). Using a mixed sample that included African Americans and Mexican Americans, Ryff et al. (2003) also showed that increases in experiences of discrimination decrease self-esteem and environmental mastery.

The erosion of one's sense of mastery resulting from experiences with racial discrimination can be explained from several perspectives. First, the accumulation of experiences in which one fails to control his/her environment can lead to perceptions of impaired mastery (Pearlin et al., 1981). For example, if African Americans have comparatively less decision-making autonomy at work because of institutional discrimination, they have less control over their work environment, which can result in their perceptions of impaired mastery. Second, consistent with the notion of *role-person merger* (Turner, 1978), skills, habits, beliefs, and values used in one setting generalize or spill over to other situations. For example, negative beliefs about control over work may spill over to other life domains, which can lead to an impaired sense of mastery.

Referring specifically to mundane extreme environmental stress (MEES), Pierce (1974) noted that hopelessness arising from MEES will have a negative impact on one's self-concept. MEES experiences will not facilitate the development of a sense of mastery. Pierce explains that African Americans feel that their time and space are being misused, abused, and controlled, compared with European Americans. Such experiences may lead to a decreased sense of mastery.

Association between self-esteem and mastery.

A few studies show that the association between racial discrimination and self-esteem is mediated by a sense of personal control as measured by mastery. For example, using an Arab American sample, Moradi and Hasan (2004) showed that the sense of mastery/personal control fully mediated the association between experiences with discrimination and self-esteem. However, they report a moderately high correlation

between mastery/personal control and self-esteem ($r = .61$). These high correlations are evidence for low discriminant validity or a good convergent validity between two constructs. Thus, mastery and self-esteem can be treated as two dimensions of self-concept as suggested by Pearlin (1989). The present study examined the etiological process of stress while considering self-esteem and mastery as two indicators of the latent construct labeled as self-concept.

Stress experiences, erosion of self-concept, and depressive symptoms.

Both stressful events and daily strains have been associated with depressive symptoms (Kessler, 1997). However, studies suggest that chronic stressful experiences (i.e., daily strains) more powerfully predict depressive symptoms than acute stressful experiences (i.e., stressful events) (Mossakowski, 2003). As previously noted, the stress process theory suggests that both daily and acute stressful experiences with racial discrimination may influence the level of depressive symptoms directly and indirectly through the erosion of one's self-concept.

Experiences with racial discrimination may directly contribute to increased depressive feelings such as a sense of hopelessness, loneliness, lack of motivation, and other negative emotions among African Americans. Feelings of distress may also directly result from failures that are encountered in striving to realize socialized aspirations. In a society that places great value on achievement, failures can generate depressive symptoms such as hopelessness (Pearlin et al.).

Ross and Mirowsky (1989) posit that lack of control or self-worth, however, does not exist in a vacuum; instead, one's sense of powerlessness and worthlessness is a form

of subjective alienation that generates depressive symptoms and other forms of distress. Having a valued identity disparaged by a discriminatory experience may produce feelings of distress (Noh et al., 1999).

Although both stressful events and daily strains can directly give rise to depressive symptoms, Pearlin (1989) emphasized the indirect influence of stress on depressive symptoms through the erosion of self-concept. The erosion of self-concept operates as the most proximal cause of the depressive symptoms. That is, the erosion of positive self, such as the diminishing of mastery and self-esteem arising from stressful events and daily experiences, or MEES, results in greater depressive symptoms.

Studies show that the erosion of both mastery and self-esteem is associated with an increase in depressive symptoms (Lever et al., 2005). For example, Ali and Avison (1997) showed that a decrease in self-esteem over time contributed to an increase in depressive symptoms in a sample of females. Developmental studies also show that experiences of childhood stress resulted in a decrease in self-concept—self-esteem and mastery—which in turn has been shown to increase depressive symptoms over time (Turner et al., 2001). Corning's (2002) study revealed that decreases in African American women's self-esteem arising from discrimination contributed to increases in depressive symptoms. The present study examined these associations among both African American men and women.

The Stress Symptoms

The stress process theory posits that in the stress experience, the two components of self-concept—self-esteem and mastery—are closely associated with depressive

symptoms. That is, the erosion of the positive self-concept is disruptive to mental health. Thus, Pearlin (1989) argues that depression is one of the most obvious reflections of stress.

Moderation by Self-Concept

The stress process theory (Pearlin, 1989; Pearlin et al., 2005) suggests that not only can self-concept mediate the influence of stressful experiences on depressive symptoms, but it may also moderate the relation between stress and depressive symptoms. This is because self-esteem and mastery are psychosocial resources that can protect individuals against the detrimental effects of stressful life experiences. That is, “self-concept serves to change the situation from which stressors arise, to manage the meaning of the situation in a manner that reduces its threat, or to keep the depressive symptoms within manageable bounds” (Pearlin, 1989, p. 250). Individuals with a strong sense of self are expected to be more proactive in seeking solutions to problems and less affected by stressful experiences when they do occur. An important dimension of this moderating process is the belief that one has control over one’s life rather than being at the mercy of powerful others and outside forces.

The literature on stress provides evidence for the moderating effects of self-concept. For example, Whisman and Kwon (1993) showed that individuals with low levels of self-esteem have a higher level of depressive symptoms than do individuals with high levels of self-esteem. Moreover, as stressful experiences increase, depressive symptoms among individuals with low-self-esteem increase at a greater rate than among individuals with high-self-esteem (Whisman & Kwon, 1993). Very few studies have

examined the moderating effect of self-esteem or mastery on the relations between racial discrimination and depressive symptoms.

Moderation by SES

Although previous studies have shown that socioeconomic differences explain some of the variance in racial disparities in health (Williams, Jackson, & Anderson, 1997), less is known about the moderating effect of socioeconomic status on the association between experiences with racial discrimination and depressive symptoms. In addition to the direct additive influence of SES on mental health, the stress process theory suggests that the association between experiences with racial discrimination and depressive symptoms can also be moderated by socioeconomic status. In the previous chapter, I discussed some of the literature addressing the moderation of the association between experiences with racial discrimination and depressive symptoms by socioeconomic status (George & Lynch, 2003; Kessler & Neighbors, 1987; Ulbrich et al., 1989).

The stress process theory suggests that SES may moderate the association between stress and mental health outcomes through *differential vulnerability* (Pearlin, 1989; Pearlin et al., 2005). Individuals with a lower SES are more vulnerable to depressive symptoms (Pearlin et al., 1981). The present study examines two markers of SES including family income and education. Referring to such differential vulnerability, Pearlin et al. note that the association between undesirable stressful experiences and depressive symptoms may be intensified by the socioeconomic vulnerabilities (e.g. financial strain) of lower SES individuals. This is because of the accumulation of several

stressors. Moreover, individuals with lower SES typically have lower levels of education; both low SES and low levels of education contribute to economic strain (Schulz et al., 2000). Gallo and Matthews (2003) posit that the stressful nature of lower socioeconomic environments makes individuals less capable of managing stress, which in turn places individuals at greater risk for the psychological consequences of negative affect (e.g., negative emotions and negative cognitions). In contrast, a higher SES brings with it social resources that buffer social and psychological stress (Lin & Ensel, 1989). As previously discussed, I expected the process of differential exposure and differential vulnerability based on SES to apply to stressful experiences with racial discrimination.

Referring to differential stress exposure, Pearlin et al. (1981) noted that the experience of stressors also depends on a person's social status vis-à-vis social stratification, which is partially based on race. Pearlin contended that an individual's social position plays a large role in the etiological process of stress, the types of stressors experienced, the role that self-concept plays, and the stress symptoms experienced (Pearlin, 1989).

Stress research shows that individuals with a lower SES experience a greater number of daily strains and stressful events than those with a higher SES (Lantz, House, Mero, & Williams, 2005; Turner et al., 1995). As discussed in the previous chapter and consistent with this notion of differential exposure, in the present study, I expected that individuals with a lower SES would encounter more discriminatory experiences than individuals with a higher SES.

Moderation by Gender

The stress process has been shown to vary by gender. However, previous studies provide mixed finding about gender differences in the stress process. Some studies show that women exhibit lower levels of self-esteem (Kling, Hyde, Showers, & Buswell, 1999) and higher levels of depressive symptoms than do men (National Institute of Mental Health, 2004; Pearlin, 1989; Weich, Sloggett, & Lewis, 2001). Also, studies suggest that women experience a greater decrease in self-esteem and mastery in response to a high level of racial discrimination than men (Ryff et al., 2003).

Other studies suggest that women possess higher levels of behavioral and social coping resources than men. Specifically, the tend-and-befriend theory explains that men and women behave differently when exposed to stress. Taylor et al. (2000) posit that, as women encounter stressful experiences, they exhibit “tending” behavior (e.g., nurturing) which protects the self, and “befriending” behavior (e.g., networking) which elicits social support. Both of these behaviors decrease the psychological symptoms of stress among women (Taylor et al., 2002; Taylor, Klein, & Lewis, 2000). Although, it was not possible to examine these behavioral responses to stressful experiences in the present study, it is important to remember the evidence and reasoning that may explain the varying manifestation of stress between African American husbands and wives. Consistent with the tend-and-befriend theory, I expected: (a) a weaker positive association between experiences with racial discrimination and depressive symptoms for women than men; and (b) a weaker negative association between experiences with racial discrimination and self-concept for women than for men.

Study Hypotheses

Consistent with the study goals and in line with the theoretical framework just discussed, I proposed six hypotheses regarding African Americans' experiences with racial discrimination:

1. There will be a positive association between experiences with racial discrimination and depressive symptoms.
2. There will be a stronger positive association between experiences with racial discrimination and depressive symptoms for those with a low self-concept compared to those with a high self-concept.
3. There will be a negative association between experiences with racial discrimination and self-concept.
4. Self-concept will mediate the association between experiences with racial discrimination and depressive symptoms.
5. Moderating effects (In addition to the moderating effects tested in Hypothesis 2, two additional sets of analyses will involve testing for the moderating effects of SES and gender.):
 - a. I will test for the moderating effects of SES.
 - (i) African Americans with lower education will experience a stronger positive association between experiences with racial discrimination and depressive symptoms than will African Americans with higher education.
 - (ii) African Americans with lower family income will experience a stronger positive association between experiences with racial

discrimination and depressive symptoms than will African Americans with a higher family income.

b. I will test for the moderating effects of gender.

(i) African American men will experience a stronger positive association between experiences with racial discrimination and depressive symptoms than will African American women.

(ii) African American men will experience a stronger negative association between experiences with racial discrimination and self-concept than will African American women.

6. A spouse's experiences with racial discrimination will be negatively associated with a partner's self-concept and positively associated with a partner's depressive symptoms.

CHAPTER 3: METHODS

Data and Measures

Sampling Procedures

The data for the present study come from a project funded by the National Institute of Child Health and Human Development (NICHD)—*A Study of African American Marriage and Health* (Principal Investigator: Dr. Chalandra M. Bryant). That study is now referred to as the HEART Project (Helping to Examine African American Relationship Traits). It is a five-year study of African American couples residing in a southern state. To be eligible for the study, both partners needed to be African American and at least 18 years of age or older. Both partners in the relationship had to agree to participate. Couples were identified through the marriage license bureau in Alabama. Letters were mailed to them asking if they would consider participating in the study, after which follow-up phone calls were made. During those calls, face-to-face interviews were scheduled in the homes of the participants. Two interviewers visited the homes of the participants; one person interviewed the husband while the other interviewed the wife in a different room. Interviewers read each question to the participants. The average length of the interview was about two hours. All interviewers were African American. The interviewers asked questions about racial discrimination, mental health, marriage, social networks, and psychosocial resources. I have been actively involved in various activities of the HEART Project, including participant selection, questionnaire construction, data entry, and data analysis.

Sample Characteristics

The county in which the participants reside has an estimated population of 401,427. In 2005, 34.4% of the population consisted of African Americans (U.S. Census Bureau, 2007). Among the female African Americans in the sample, 65.6% had more than a high school education and 52.7% worked 40 hours or more per week. The median age at the time of marriage was 30 years. This was the first marriage for 77.0% of the wives. Among the African American husbands in the sample, 50.7% had more than a high school education, and 79.6% worked 40 hours or more per week. In addition, among husbands, the median age at the time of marriage was 32 years. This was the first marriage for 67.0% of husbands. The mean household annual income of the couples was approximately \$57,000. About 66.9% of the couples entered marriage with children.

Measures

Experiences with Racial Discrimination. Experiences with racial discrimination in the present study were measured using ten self-report items that captured the frequency of experiencing micro-aggressions (e.g. being ignored, excluded, insulted, or suspected of a crime) in the past year. See Appendix A for a complete list of all items. Items were rated using a Likert scale ranging from 1 (never) to 5 (more times than I can count). The items were used to create a mean composite measure of racial discrimination. Both husbands and wives responded to the items. High scores on this measure reflected greater experiences with racial discrimination. This discrimination measure was adapted from McNeilly et al. (1996) and Murry et al. (2001). Whitbeck et al. (2002) also used items

adapted from McNeilly et al. (1996) and Murry et al. (2001). They, too, computed means to create the measure. The alpha for wives was .78, and for husbands, .81.

Previous studies have shown that self-report measures of racial discrimination have shown good validity and reliability (Krieger, Smith, Naishadham, Hartman, & Barbeau, (2005). For example, 34 studies that have used the self-reported measure of discrimination reported good reliability and validity (Paradies, 2006). High reliability in self-report measures (i.e., $\alpha = .87$) assessing experiences with racial discrimination have also been documented by Seaton (2006).

Depressive Symptoms. Depressive symptoms were assessed using the 20 CES-D items (Center for Epidemiological Studies-Depression Scale) (Radloff, 1977). The alpha for wives was .78, for husbands, .75. The responses for the CES-D items were coded on a Likert-type scale ranging from 1 (less than one day a week/rarely) to 4 (five to seven days a week/most of the time). The CES-D has been widely used in cross-cultural mental health studies. These studies indicate that the CES-D has good psychometric properties (e.g., internal consistency of .90) (Brown & Gary, 1988; Noh et al. 1999; Wickrama & Bryant, 2003).

The CES-D is composed of four dimensions as classified by Perreira et al. (2005) and Radloff (1977). These dimensions are (a) depressed affect, (b) positive affect, (c) somatic activity, and (d) interpersonal problems. The items in each dimension are listed in Appendix B. Confirmatory Factor Analyses also indicated that there are four separate dimensions (factors).

A model for depressive symptoms was constructed using all 20 CES-D items as multiple indicators for husbands (See Appendix C). This model (Model A) fit the data reasonably well for husbands ($\chi^2_{(162)} = 487$, $\chi^2/df=3.00$; RMSEA=.08). To obtain evidence of separate factors for depressed affect, positive affect, somatic activity, and interpersonal problems, four additional latent constructs were added to model A. This incremental model was labeled Model B. Model A is said to be nested in Model B. That is, Model A is considered a special case of Model B. Thus, the chi-square statistics of these models can be compared (Lorenz & Melby, 1994). Model B showed a better fit ($\chi^2_{(154)} = 321$, $\chi^2/df=2.08$; RMSEA=.06) than Model A. The change in the chi-square was large and significant ($\Delta\chi^2_{(8)} = 166$). Thus, Model B showed a better fit with the data providing evidence for the existence of four separate factors (depressed affect, positive affect, somatic activity, and interpersonal problems) of depressive symptoms. Although the statistically best fitting model (i.e., chi-square index) was Model B for husbands, the low factor loadings made it substantively less meaningful. Model C presents a four-factor model for husbands ($\chi^2_{(175)} = 485$, $\chi^2/df=2.77$; RMSEA = .07). This less-complex model showed an acceptable fit with the data. It revealed higher factor loadings for husbands. I therefore created four composite measures to reflect the four dimensions of depressive symptoms for husbands. These measures were used as multiple indicators of the latent construct labeled *depressive symptoms* in the analyses for husbands.

Similar results were obtained for wives' Model D ($\chi^2_{(165)} = 541$, $\chi^2/df=3.27$; RMSEA = .08) and wives' Model E ($\chi^2_{(158)} = 315$, $\chi^2/df=1.99$; RMSEA = .05) (See Appendix C). The change in chi-square was large and significant for the wives as well ($\Delta\chi^2_{(7)} = 226$). Although the statistically best fitting model (i.e., the chi-square index) was

Model E for the wives, the low factor loadings made it substantively less meaningful.

Model F presents the four-factor model for wives ($\chi^2_{(173)} = 457$, $\chi^2/\text{df}=2.64$; RMSEA = .07). This less-complex model showed an acceptable fit with the data. It revealed higher factor loadings for the wives. I therefore created four composite measures to reflect the four dimensions of depressive symptoms for the wives. These measures were used as multiple indicators of the latent construct labeled *depressive symptoms* in the analyses for wives.

Self-Concept. The two components of self-concept were self-esteem and mastery. I computed individual mean scores using the self-esteem and mastery items in order to include them as multiple indicators of the latent construct called *self-concept*. Confirmatory Factor Analyses of the items used to create self-concept yielded two factors (mastery and self-esteem).

Measures of mastery and self-esteem were used as the two indicators of the latent construct *self-concept*; 9 items were used for self-esteem and 5 items for mastery (see Appendix D and Appendix E). Model A for husbands did not fit the data well ($\chi^2_{(81)} = 326$, $\chi^2/\text{df}=4.02$; RMSEA = .10). To obtain evidence of separate factors for self-esteem and mastery, two additional latent constructs were added to Model A (this incremental model was labeled Model B). Model A is said to be nested in Model B. That is, Model A is considered a special case of Model B. Thus, chi-square statistics of these models can be compared (Lorenz & Melby, 1994). Model B showed a better fit ($\chi^2_{(72)} = 109$, $\chi^2/\text{df}=1.51$; RMSEA = .04) than Model A. The change in chi-square was large and significant ($\Delta\chi^2_{(17)} = 217$). Thus, Model B showed a better fit, with the data providing evidence for the existence of two separate factors (self-esteem and mastery) for self-

concept. Although the statistically best fitting model was Model B for husbands, the low factor loadings made it substantively less meaningful. I therefore created two composite measures to reflect the two dimensions of self-concept for husbands. These measures were used as multiple indicators of the latent construct labeled *self-concept* in the analyses for husbands. Model C presents this four-factor model for husbands ($\chi^2_{(81)} = 229$, $\chi^2/df=2.82$; RMSEA = .07). It revealed higher factor loadings for husbands. Similar results were provided for the wives in Model D ($\chi^2_{(74)} = 382$, $\chi^2/df=5.16$; RMSEA = .10) and Model E ($\chi^2_{(72)} = 136$, $\chi^2/df=1.88$; RMSEA = .05). The change in chi-square was considerable and significant ($\Delta\chi^2_{(2)} = 246$). Although the statistically best fitting model (according to at the chi-square index) was Model E for wives, the low factor loadings made it substantively less meaningful. I, therefore, created two composite measures to reflect the two dimensions of self-concept for wives. These measures were used as multiple indicators of the latent construct labeled *self-concept* in the analyses for wives. Model F presents this two-factor model for the wives ($\chi^2_{(81)} = 313$, $\chi^2/df=3.86$; RMSEA = .09). It revealed higher factor loadings for wives.

Self-Esteem. The measure of self-esteem was constructed by computing the mean of nine items adapted from those originally developed by Rosenberg (1989). The responses for the items were coded on a Likert scale ranging from 1 (strongly agree) to 5 (strongly disagree). As previously stated, the items for self-esteem are listed in Appendix D. Items 2, 5, 6, and 8 (as listed in the appendix) were reverse coded so that high scores reflected greater self-esteem. The alpha for wives was .75, for husbands, .70.

Mastery. The measure of mastery was constructed by computing the mean of five items originally developed by Pearlin et al. (1981). The responses for these items were

coded on a Likert scale ranging from 1 (strongly agree) to 5 (strongly disagree). As previously stated, the items for mastery are listed in Appendix D. Items 1, 2, 3, and 4 were reverse coded so that high scores reflected greater mastery. The alpha for wives was .74, for husbands, .66.

Socioeconomic Status. The study participants' educational level and family income level were used as markers of socioeconomic status. I used these markers as moderators in the analyses. Appendix F lists the categories for education. Study participants were asked to report their family income.

Missing Data

Less than 1% of the data for the present study were missing. Values can be missing completely at random (MCAR) if the reason they are missing is completely unrelated to the problem at hand (e.g., data entry error). Values may be missing at random (MAR) if the reason they are missing does not affect our ability to draw conclusions (e.g., neglect to collect data on age for one year but have auxiliary information to help us estimate age). Values may be non-ignorably missing (NI) if the reason they are missing contains important information about why they are missing (e.g., individuals with high income may choose not to answer questions about income). Traditional approaches such as listwise deletion, pairwise deletion, and mean substitution can produce biased estimates, distort statistical power, and lead to invalid conclusions for MCAR, MAR and NI conditions (Acock, 2005).

The Full Information Maximum Likelihood (FIML) method offers substantial improvements over traditional measures. FIML can be used to manage missing data and increase the effective sample size. Research indicates that imputation is successful for up to 30% of missing data under the MAR and MCAR conditions, which can enhance the efficiency of subsequent analyses (Sinharay, Stern, & Russell, 2001). In the present study, missing values were managed using the FIML, which is available in the AMOS program.

Diagnostics

I performed preliminary diagnostics on the variables included in the present study (See Table 4 for information regarding experiences with racial discrimination, depressive symptoms, self-concept, education, and family income.) These diagnostics helped me determine whether the variables needed to be transformed in any way. I looked for a normal distribution on all observed variables. This is because an assumption in latent constructs and missing values imputation techniques (i.e., FIML) is that there is normality in the observed variables. If the distribution of an observed variable is skewed, an appropriate transformation can be performed in order to attain a normal distribution for that variable. However, the variables in the present study did not display skewness; therefore, transformations were not performed.

Descriptive Statistics

Table 4 presents the means, standard deviations, skewnesses, and internal consistencies (alphas) for all of the study variables. These values are presented separately for African American wives and husbands. Among both husbands and wives, standard deviations and skewnesses showed that all the study variables had distributions with acceptable normality. Many of the alpha values for the wives' and husbands' indices reflect acceptable internal consistencies.

Table 4*Descriptive Statistics of the Study Variables*

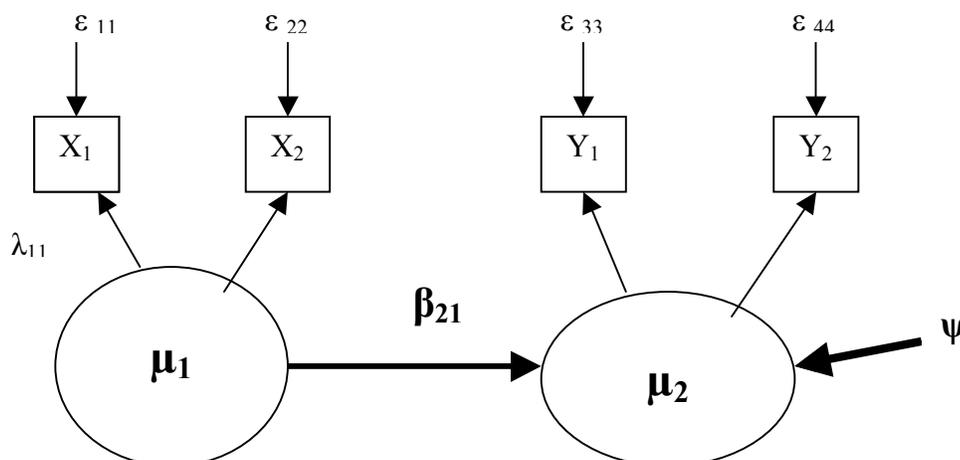
	Variable Name	Mean	Standard Deviation	Skewness	Cronbach's Alpha
Wives (N=305)	Exp. Racial Discrimination	1.44	.44	1.03	.78
	Depressive Symptoms	1.32	.29	1.07	.78
	Depressed Affect	1.22	.39	2.03	.72
	Positive Affect	1.48	.53	.93	.40
	Somatic Activity	1.37	.41	1.22	.69
	Interpersonal Problems	1.20	.38	1.92	*
	Self-Concept (composite)	4.23	.48	-.26	.83
	Self-Esteem	4.37	.43	-.44	.75
	Mastery	4.09	.65	-.36	.74
	Education	4.79	1.84	.06	
Husbands (N=305)	Exp. Racial Discrimination	1.41	.49	1.23	.81
	Depressive Symptoms	1.34	.30	1.03	.75
	Depressed Affect	1.24	.33	1.53	.64
	Positive Affect	1.51	.56	.95	.45
	Somatic Activity	1.35	.33	1.12	.55
	Interpersonal Problems	1.27	.44	1.49	*
	Self-Concept (composite)	4.16	.46	-.12	.79
	Self-Esteem	4.29	.43	-.13	.70
	Mastery	4.03	.61	-.33	.66
	Education	4.16	1.59	.60	
	Family Income	\$57,000	\$30,000	.95	

* Only 2 items.

Analytical Strategy

Structural Equation Modeling (SEM) was my principal analytical strategy. The latent constructs in the structural equation models include (a) depressive symptoms and (b) self-concept. The measures/indicators of these latent constructs were continuous variables.

Figure 4. An Illustration of Structural Equation Modeling.



Structural Equation Modeling involves two levels. The first level is the measurement level. I used a simple Structural Equation Model as shown in Figure 4. In the illustrated SEM, the latent construct μ_1 is defined by two indicators of X_1 and X_2 . Similarly, the latent construct μ_2 is defined by two indicators of Y_1 and Y_2 . Thus, the prediction equation for observed variables can be written using λ 's as factor loadings and ϵ 's as measurement errors as follows:

$$X_1 = \lambda_{11} * \mu_1 + \epsilon_{11}$$

$$X_2 = \lambda_{21} * \mu_1 + \epsilon_{22}$$

Using μ_2 , similar equations can be written for Y_1 and Y_2 . The factor loadings λ 's show the degree of association between the observed measure and the latent construct.

The second level of Structural Equation Modeling is the structural level, i.e., the relation between the latent constructs μ_1 and μ_2 . The prediction of μ_2 by μ_1 , is as follows:

$$\mu_2 = \beta_{21} * \mu_1 + \psi \quad \text{where } \psi \text{ is the error of } \mu_2$$

The model parameters can be estimated simultaneously using the Maximum Likelihood (ML) procedure.

Evaluating the SEM Model Fit

I did not rely on any single goodness-of-fit index, but rather used a range of indices to evaluate the fit of my models. Yoder (1998) estimates that at least 25 goodness-of-fit indices have appeared in the literature to evaluate model fit. Each index evaluates fit differently and has certain strengths and limitations. I used chi-square statistics, NFI, and RMSEA to evaluate the study models. The chi-square test statistic divided by the degree of freedom provided a preliminary and approximate guideline for overall fit. When a chi-square value divided by the degree of freedom is less than 2.0, it is believed to indicate good model-fit (Byrne, 1989). *Carmines and McIver (1981) suggest that a chi-square to degrees of freedom ratio less than 3 indicates that the model fits the data reasonably.* The chi-square statistic reflects the difference between the observed covariance matrix and the estimated covariance matrix, and is the basis for nearly all of the other fit indices. The major limitation of the chi-square statistic is its dependence on the sample size. The p-value should be interpreted with caution, however, when the sample size is relatively large (Yoder, 1998). Despite this limitation, the difference in the chi-square statistic across nested models was used to evaluate the improvement of one

model over the other since the difference in chi-square also has a chi-square distribution (Lorenz & Melby, 1994).

In addition, I used the Normed Fit Index (NFI) and the Root Mean Squared Error of Approximation (RMSEA) to evaluate the study models, because these two indices are not directly related to the sample size. Bentler and Bonett (1980) suggest that a NFI value of more than .90 indicate that the model fits the data reasonably. When RMSEA is less than .05, it is believed to indicate good model-fit (Yoder, 1998; Jorsekog & Sorbon, 1981). *Browne and Cudeck (1993) suggest that a RMSEA of less than .08 indicate that the model fits the data reasonably.* RMSEA is sensitive to the number of parameters being estimated. RMSEA is unrelated to the estimation method.

Advantages of Using SEM

There are several advantages to using the Structural Equation Modeling approach. These advantages were particularly important for the tests of my study hypotheses. *First and foremost*, using SEM afforded me the opportunity to investigate intra-individual processes after taking into account the *dependency between husbands and wives*. Thus, I predicted husbands' and wives' depressive symptoms using their experiences with racial discrimination, after correlating husbands' and wives' depressive symptoms.

Second, dyadic SEM models afforded me the opportunity to examine interactive or transactional processes. Family researchers increasingly focus on transactional and inter-dyadic processes (Lyons & Sayer, 2005; O'Brien, 2005). For example, one person's moods, behaviors, and beliefs may influence another's moods, behaviors, and beliefs (O'Brien, 2005). As discussed in the previous paragraph, some of these dependencies

between husbands and wives were controlled in the model as non-directional covariances. Inter-dyadic influences, such as the association between a husband's experiences with racial discrimination and a wife's depressive symptoms (and vice versa), were tested simultaneously using SEM.

Third, SEM allowed me to create unobserved variables (latent constructs) using measured variables as multiple indicators. For example, I used mastery and self-esteem as indicators of the latent construct, *self-concept*. In addition, I used depressed affect, positive affect, somatic activity, and interpersonal problems as multiple indicators of the latent construct, *depressive symptoms* (see Figure 5). The use of multiple indicators in the SEM framework allowed for the correcting of attenuation in structural regression coefficients (β 's), by taking into account the *measurement error* of observed variables (ϵ 's). This yields more accurate regression coefficients (Bollen, 1989).

In the context of classical psychometric measurement theory (Zeller & Carmines, 1980), an observed score of X is equal to the 'true score, x' plus 'measurement error, ϵ '.

$$X = x + \epsilon$$

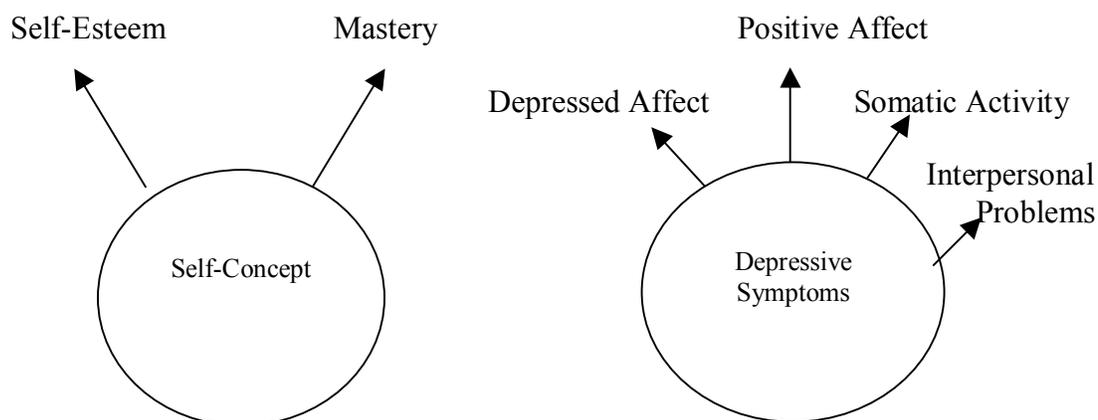
Thus, $\text{var}(X) = \text{var}(x) + \text{var}(\epsilon)$ under the independent error assumptions. The observed score X could be a single item from a questionnaire or an index constructed from several items. Reliability of the indicator X can be defined as the part of the variance of X, which is explained by the concept x. Thus, the reliability is equal to $\text{var}(x) / \text{var}(X)$. In a simple regression analysis, if the random error ϵ is large, then the $\text{var}(X)$ will also be large and the $\text{var}(x)$ will be small (low reliability of the indicator X), thereby resulting in attenuated β path coefficients. As previously stated, the use of multiple indicators in SEM allowed for correcting the attenuation of regression

coefficients. Thus, I used multiple indicators to measure latent constructs labeled self-concept and depressive symptoms (after conducting confirmatory factor analyses).

Figure 5. Latent Constructs with Multiple Indicators.

(A) Self-concept latent construct

(B) Depressive symptoms latent construct



The classical conception of random measurement error has been extended in several ways (Lorenz & Melby, 1994). One useful approach is to create multiple indices of concepts where each index consists of several questionnaire items. These composite indices can be used as multiple indicators of latent constructs (Newcomb & Bentler, 1986). Use of such composite indices to develop latent constructs, rather than using original questionnaire items, will improve statistical properties of the measures in several ways. First, composite indices are more likely to have properties of ‘continuous variables’, especially when single items have limited response formats (Lorenz & Melby, 1994). Second, I believe that the addition of several items may improve (reduce) random

measurement error by canceling out positive and negative deviations of items from their true scores.

The *fourth* advantage of SEM involves its use of Confirmatory Factor Analyses (CFA) to identify factors among the original items. Items corresponding to these factors can be averaged or summed to create composite indices that can be used as multiple indicators of latent constructs (concepts) (MacCallum & Austin, 2000). In addition, the identified separate factors can be used in the analyses as latent constructs themselves.

Whenever appropriate, I used composite indices as multiple indicators to capture latent constructs. For example, using confirmatory factor analyses in the SEM framework, I identified several factors (dimensions) and their corresponding items. Based on these findings, I created several indices to be used as multiple indicators for the depressive symptoms latent construct. This is particularly important because, recent research has provided mixed findings regarding factor arrangements in CES-D-items. As previously discussed, several studies have shown that the CES-D is composed of four factors/dimensions/indicators: (1) depressed affect, (2) positive affect, (3) somatic activity, and (4) interpersonal problems. Each of the indicators consists of several CES-D items (Radloff, 1977; Perreira et al. 2005). Radloff determined the four factors and their items through principle components analysis with varimax rotation.

However, since the original CES-D items were published, recent studies have shown that the factor arrangement of the latent construct has varied in many ways.

- There is the single-factor model, with each item of the CES-D scale being treated as items of a single factor.

- There are two variations of three-factor models showing how the CES-D items may be grouped into the three different factors. That is, one model may have a combined depressed and positive affect factor, a separate somatic complaints factor, and a separate interpersonal problems factor, while another model may have a combined depressed affect and somatization factor, a separate positive affect factor, and a separate interpersonal problems factor.
- There is the CES-D recommended four-factor model consisting of a depressed affect factor, a positive affect factor, a somatic complaints factor, and an interpersonal problems factor. Riddle, Blais, and Hess (2000) documented that the four-factor and three-factor models showed better fit-indices than the single-factor model. Moreover, they emphasize that studies using confirmatory factor analysis and exploratory factor analysis have demonstrated the superiority of the four factor CES-D model over the other CES-D models. However, because of mixed conclusions regarding the factors of the CES-D items, I performed a CFA to identify the appropriate factors (dimensions) among the 20 items.

Fifth, SEM afforded me the opportunity to test for the equivalence of factor structures across groups. When comparing measurement models of depressive symptoms between groups (i.e., males compared with females or low SES individuals compared with high SES individuals), I tested model form equivalence and model parameter equivalence (MacCallum & Austin, 2000; Perreira et al., 2005). Differences in form (such as the number of items in a factor) or differences in parameter patterns (such as constrained parameters) will violate the assumption of form equivalence between two

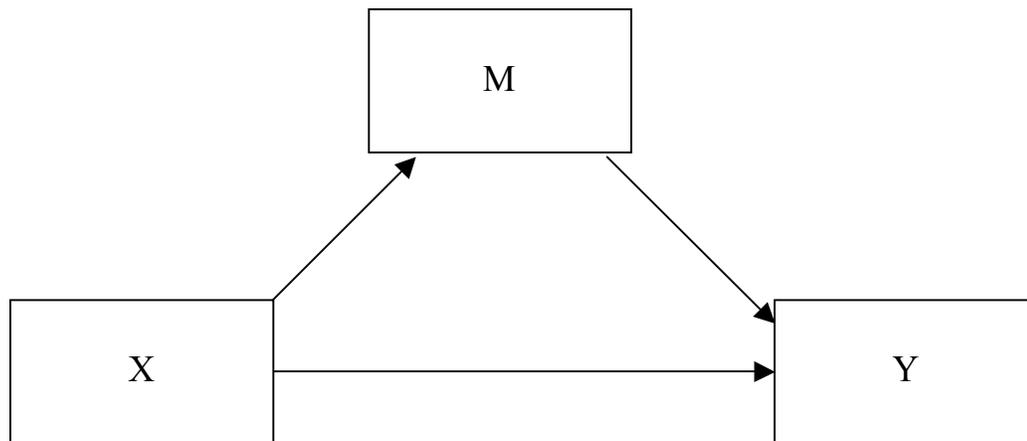
groups. In addition, for measurement models between groups to be equal, there must be equivalence in parameter estimates such as factor loadings, variances, means, and intercepts. The ability of SEM to model such means, variances, and covariances gave me the opportunity to compare the group differences in these parameters among measured variables; it also gave me the opportunity to explain the group differences among latent variables in terms of the measured variables (MacCallum & Austin).

Sixth, SEM allowed ‘nested model’ testing. Because more than one model can demonstrate a reasonable fit with a particular data set, several nested alternatives to the theoretical model should be tested. Hierarchical nested alternative models were evaluated using corresponding change in chi-square statistics. This is related to the identification of factor structures using CFA (previously discussed). Hierarchical nested models with different factors were compared. For example, evidence for a two factor arrangement (e.g., mastery and self-esteem) over one overall factor arrangement in the self-concept construct was provided by comparing nested models.

Seventh, by using structural equation models, I tested *complex processes*. Family researchers increasingly emphasize the need to focus on the processes involving mediations and moderations rather than simply focusing on main effects (O’Brien, 2005). My hypotheses involve complex processes. That is, I tested hypotheses related to direct effects, indirect effects, mediations, and moderations. In the present study, using the SEM approach, mediation was tested as described by Baron and Kenny (1986). Their explanation of mediation has four essential steps (Please refer to Figure 6). The first step is for the predictor (X) variable to be significantly associated with the dependent variable (Y), without involving the mediator variable (M). The second step is for the predictor

variable (X) to be significantly associated with the mediator variable (M). The third step is for the mediator (M) to be significantly associated with the outcome variable (Y). The fourth step is to check that the association between the predictor (X) and the outcome variable (Y) is not significant when M is in the model. If all four of these steps are fully met, mediation exists. A partial mediation may exist if the association between (X) and (Y) decreased once (M) is added to the model.

Figure 6. Mediation Model.



Moderation was tested by examining “variables that affect the strength of the relation between a predictor variable and a dependent variable” (O’Brien, 2005, p. 1174). This was done using SEM ‘stacked’ models. I will discuss this procedure in the next section.

Testing Study Models / Hypotheses

Given the aforementioned advantages, I tested several models using SEM in the AMOS software program (Arbuckle, 2006). First, I examined measurement models. Measurement models allowed for a better identification of different dimensions of depressive symptoms. Second, I examined direct associations among the constructs of interest. Third, I examined indirect associations involving the mediation hypotheses. Finally, I tested for potential moderating effects.

Testing Direct Association Models

Hypothesis 1 states that there will be a positive association between experiences with racial discrimination and depressive symptoms. Hypothesis 2 states that there will be a stronger positive association between experiences with racial discrimination and depressive symptoms for those with a low self-concept—compared to those with high self-concept. To test Hypothesis 1, the model in Figure 7 was run separately for husbands and wives. To test Hypothesis 2 for husbands, the model in Figure 7 was run for husbands with low self-concept and for husbands with high self-concept; then the model was run for wives. It was run for wives with low self-concept and for wives with high self-concept. Figure 7 depicts the model used to test the direct association between experiences with racial discrimination and depressive symptoms.

Figure 7. Model used to test Hypotheses 1 & 2 for wives and husbands.

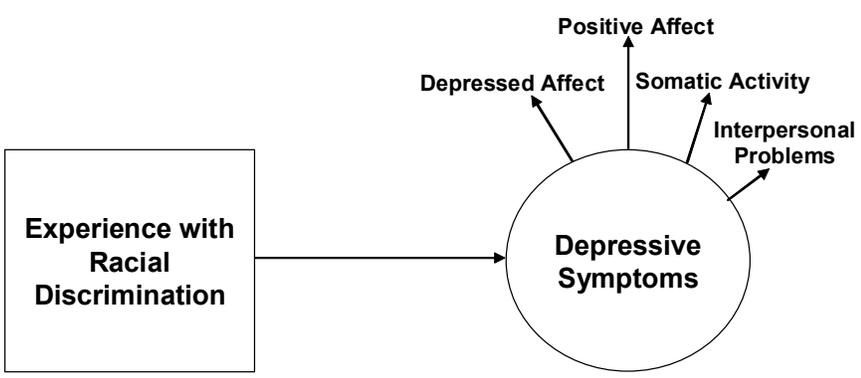
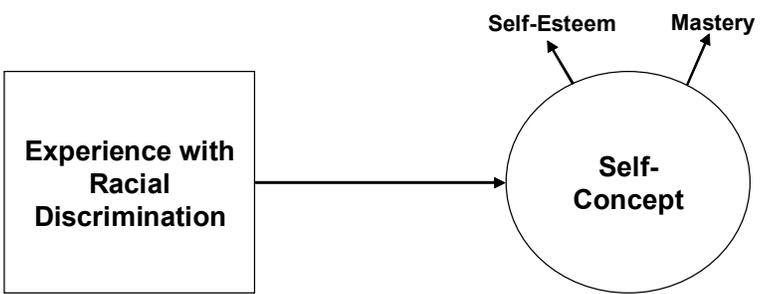


Figure 8 depicts the model used to test the association between experiences with racial discrimination and self-concept. Hypothesis 3 states that there will be a negative association between experiences with racial discrimination and self-concept. Husbands and wives were tested separately.

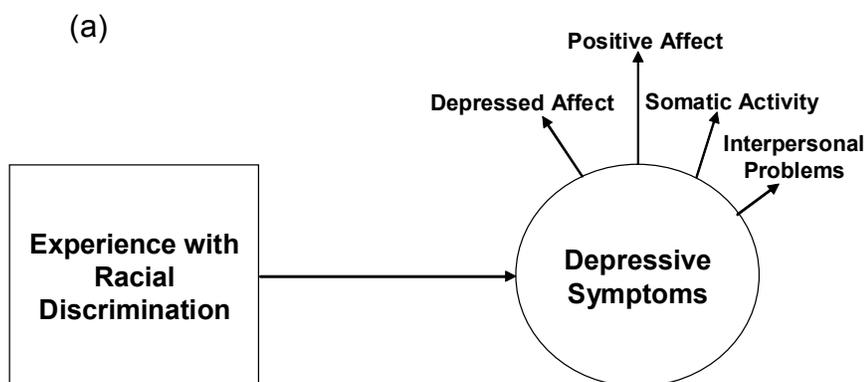
Figure 8. Model used to test Hypothesis 3 for wives and husbands.



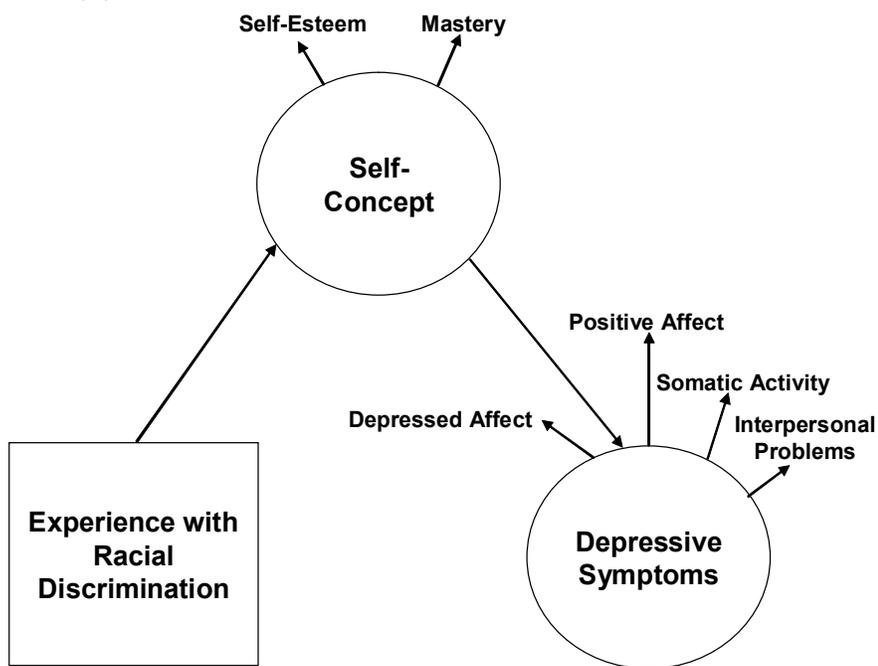
Testing Mediation

In order to test Hypothesis 4, I examined mediation models involving the experiences with racial discrimination, self-concept, and depressive symptoms. First, I tested whether experiences with racial discrimination were directly associated with depressive symptoms (see Figure 9a). Second, I examined whether experiences with racial discrimination were indirectly associated with depressive symptoms through self-concept (see Figure 9b). Finally, I examined whether the direct association between experiences with racial discrimination and depressive symptoms diminishes after including the indirect association through self-concept (see Figure 9c). That is, I determined whether self-concept mediates the association between racial discrimination and depressive symptoms (Baron & Kenny, 1986). I used the same models to test mediation for both husbands and wives.

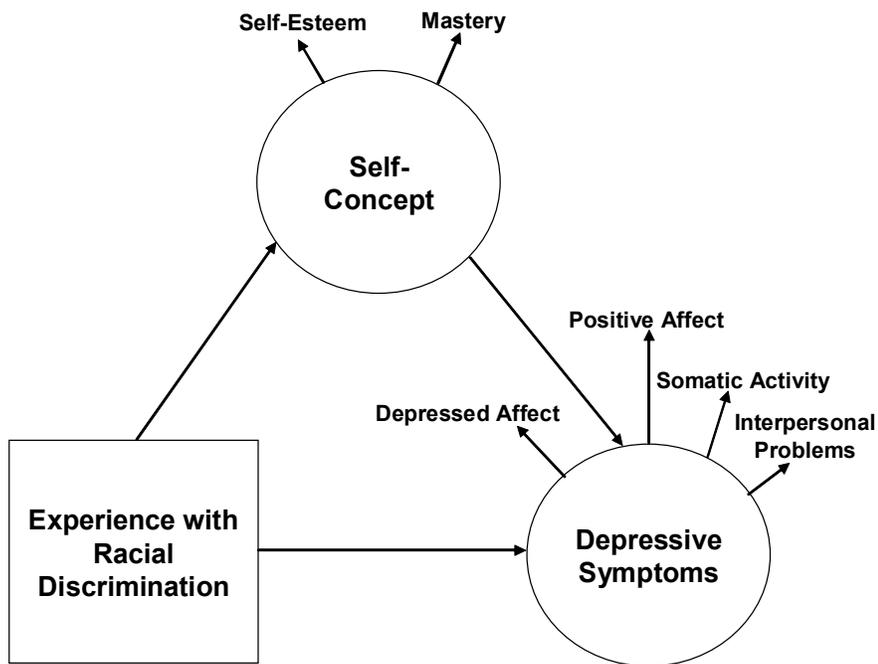
Figure 9. Models used to test mediation by self-concept.



(b)



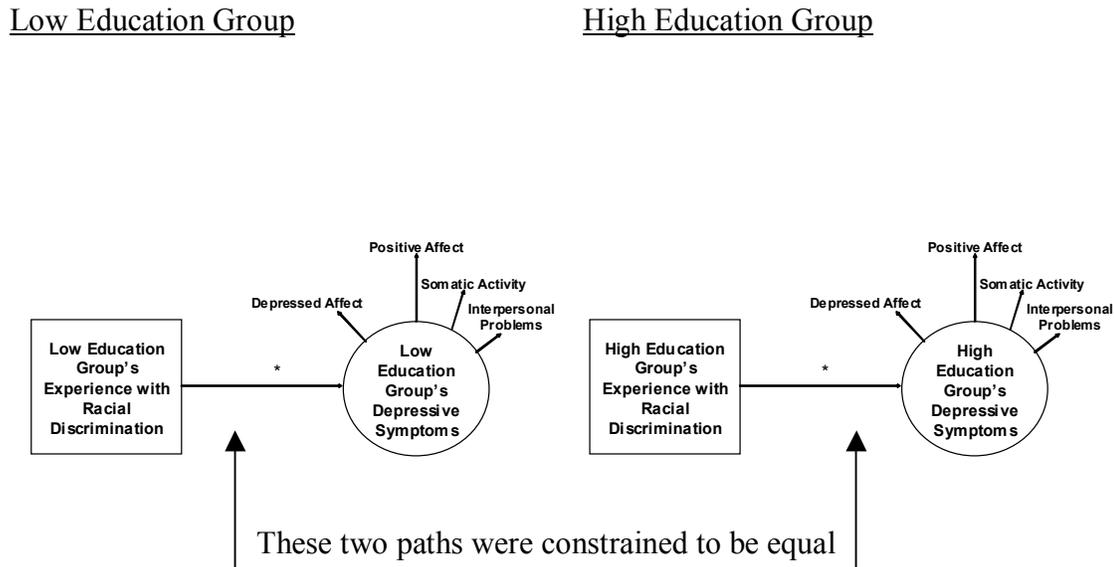
(c)



Testing Moderation by Self-Concept and Socioeconomic Status (SES)

Moderation effects were tested using a “stacked” model approach in SEM. These models investigated how path coefficients change for low versus high socioeconomic groups and how path coefficients change for low and high self-concept groups (Hypothesis 2 and 5). The difference in path coefficients was tested using equality constraints and corresponding changes in chi-square. Figure 10 depicts the model used to test the moderating effects of education (Hypothesis 5). First, I estimated the model for the low and high education groups together in the same analysis. In this combined analysis, the association between experiences with racial discrimination and depressive symptoms for low and high education groups was estimated without any constraint. The chi-square for this model was $\chi^2_{(a)}$. I then constrained the two paths (marked by *) to be equal in the combined model to determine whether this procedure would significantly reduce the model fit. The chi-square for this constrained model was $\chi^2_{(b)}$. The change in chi-square ($\Delta\chi^2_{(1)} = \chi^2_{(a)} - \chi^2_{(b)}$) resulting from the equality constraint assessed the significance of the difference in the association between experiences with racial discrimination and depressive symptoms for high and low (a) education, (b) family income, and (c) self-concept. I used similar procedure to examine the moderation between low and high family income groups and low and high self-concept groups (Hypothesis 2).

Figure 10. Models used to test moderation by education.



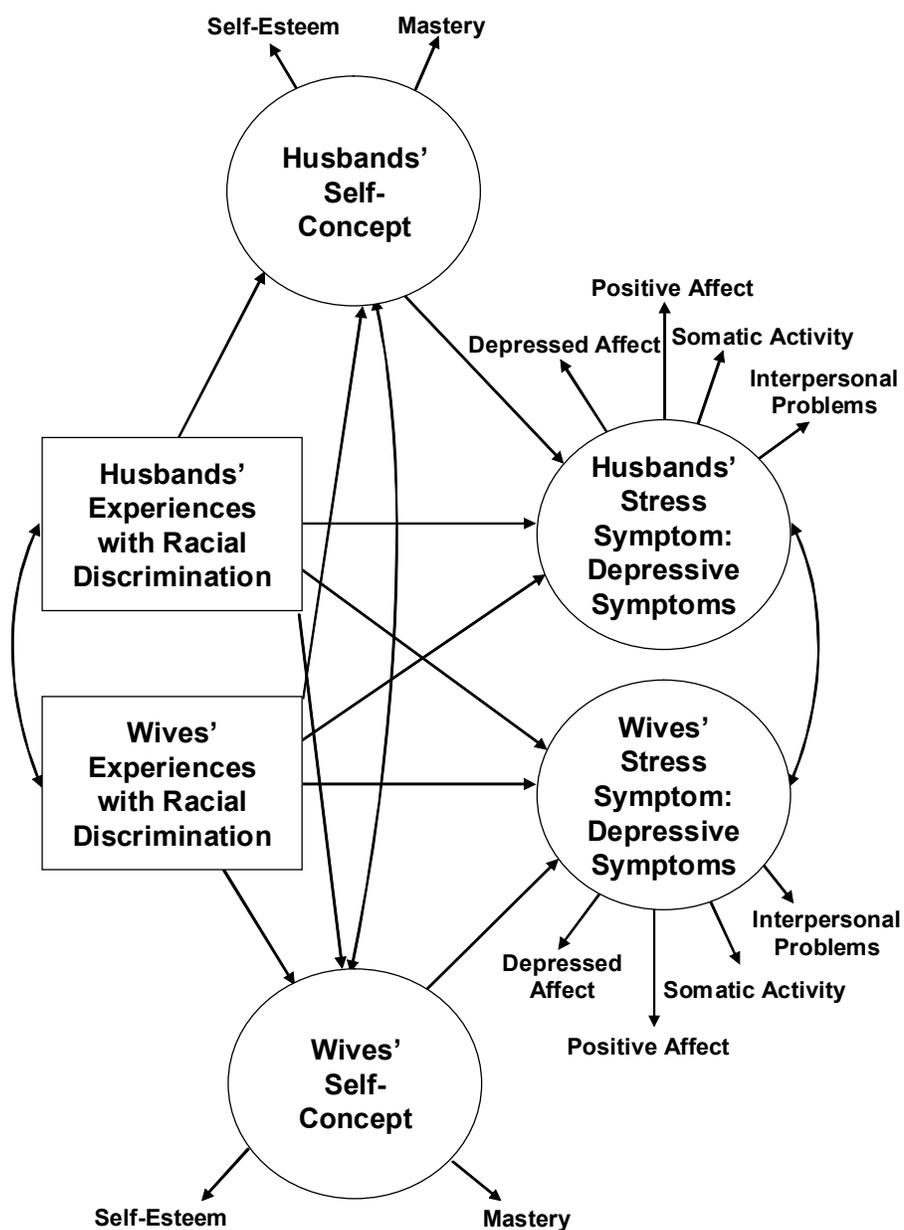
The equality constraint is indicated by *.

Dyadic Models

Figure 11 depicts the dyadic model used to test transactional associations between husbands and wives. It also takes into account the dependency between husbands and wives (Johnson & Booth, 1998). Based upon my hypotheses, I tested several dyadic models using different constructs and measures. For example, the following models are a combination of previously discussed models assessing direct and indirect associations among the sample of husbands and wives. *These combined models allow a spouse's experiences with racial discrimination to associate not only with his/her own self-concept and depressive symptoms but also with his/her partner's self-concept and depressive symptoms (transactional associations), after controlling for the dependency between a spouse and his/her partner.* Figure 11 depicts the model used to test Hypotheses 6. Hypothesis 6 states that a spouse's experiences with racial discrimination will be

negatively associated with a partner's self-concept and positively associated with a partner's depressive symptoms.

Figure 11. Model used to test the dyadic associations between husbands and wives (transactional associations and dependencies).



CHAPTER 4: RESULTS

This chapter presents the results of the study in three sections beginning with the zero-order associations among the study variables. The second section presents the results for the tests of the first five study hypotheses involving intra-individual associations between experiences with racial discrimination, self-concept, and depressive symptoms. The third section presents results for the test of Hypothesis 6 that examines inter-individual associations between experiences with racial discrimination, self-concept, and depressive symptoms for husbands and wives. As discussed in Chapter 3, confirmatory factor analyses yielded four distinct dimensions of depressive symptoms that included depressed affect (6 items), positive affect (4 items), somatic activity (8 items), and interpersonal problems (2 items). Composite measures for each of these dimensions were created by computing the mean of the respective items. These composite measures were examined as multiple indicators of a latent depressive symptoms construct.

According to the stress process theory (Pearlin et al., 1981), variables including education, income, and gender reflect theoretically important factors that influence the etiological process of stress. Consistent with the theoretical relevance of such factors, these variables have traditionally served as controls in previous studies. Therefore, the analyses conducted for this study include education, family income, and gender as predictors in the analytic models.

Zero-order Correlations

Table 5 presents the zero-order correlations between the study's latent constructs separately for husbands and wives. Correlations for husbands are below the diagonal, and correlations for wives are above the diagonal. Zero-order correlations among latent constructs showed that among husbands, (a) experiences with racial discrimination were significantly and positively associated with depressive symptoms ($r=.15, p<.01$) and family income ($r=.14, p<.05$); (b) depressive symptoms were significantly and negatively associated with self-concept ($r=-.26, p<.01$), education ($r=-.16, p<.01$), and family income ($r=-.17, p<.01$); (c) self-concept was significantly and positively associated with education ($r=.15, p<.01$) and family income ($r=.14, p<.05$), and (d) education was significantly and positively associated with family income ($r=.30, p<.01$).

Zero-order correlations showed that among wives, (a) experiences with racial discrimination were significantly and positively associated with education ($r=.11, p<.05$) and family income ($r=.12, p<.05$), (b) depressive symptoms were significantly and negatively associated with self-concept ($r=-.23, p<.01$) and education ($r=-.13, p<.05$), but not family income ($r=-.03, p>.10$); (c) self-concept was significantly and positively associated with education ($r=.26, p<.01$) and family income ($r=.18, p<.01$), and (d) education was significantly and positively associated with family income ($r=.41, p<.01$).

As shown in Table 6, the zero-order correlations **between** husbands' and wives' latent constructs showed three significant associations: (a) wives' depressive symptoms were significantly and positively associated with husbands' depressive symptoms ($r=.12, p<.05$) and significantly yet negatively associated with husbands' education ($r=-.14, p<.01$); (b) wives' education was significantly and positively associated with husbands'

education ($r=.25, p<.01$) and significantly and positively associated with husbands' experiences with racial discrimination ($r=.12, p<.05$); (c) wives' self-concept was significantly and positively associated with husbands' depressive symptoms ($.11, p<.05$). However, contrary to my expectations, husbands' experiences with racial discrimination were not significantly associated with wives' experiences with racial discrimination ($r=-.00, p>.10$). In addition, husbands' experiences with racial discrimination were not significantly associated with wives' depressive symptoms ($r = -.03, p>.10$) or vice versa ($r=-.08, p>.10$).

Appendix G presents the zero-order correlations among all the study variables, in addition to the means and standard deviations for both husbands and wives. Correlations for husbands are below the diagonal, and correlations for wives are above the diagonal. Appendix H presents zero-order correlations **between** husbands' variables and wives' variables (including the different dimensions of depressive symptoms). These bivariate correlations showed that husbands' experiences with racial discrimination were not significantly associated with any of the dimensions of wives' depressive symptoms. (Wives' interpersonal problems were only marginally associated with husbands' experiences with racial discrimination). Wives' experiences with racial discrimination were not associated with any of the dimensions of husbands' depressive symptoms. Husbands' experiences with racial discrimination were significantly associated with their own somatic activity and depressed affect, whereas the association between husbands' experiences with racial discrimination and their own interpersonal problems and positive affect were marginally significant. (See Appendix G.) Wives' experiences with racial discrimination were marginally associated only with their own somatic activity.

Table 5. Zero-order Correlations Among Latent Constructs for Husbands (n=305) and Wives (n=305)

Husbands	Wives				
	1	2	3	4	5
1 Experiences with Racial Discrimination	—	.03	.05	.11*	.12*
2 Depressive Symptoms	.15**	—	-.23**	-.13*	-.03
3 Self-Concept	.08	-.26**	—	.26**	.18**
4 Education	.09	-.16**	.15**	—	.41**
5 Family Income	.14*	-.17**	.14*	.30**	—
Husbands' Mean	1.41	1.34	4.16	4.16	12.44
Husbands' SD	.49	.30	.46	1.59	4.9
Wives' Mean	1.44	1.32	4.23	4.79	12.44
Wives' SD	.44	.29	.48	1.84	4.9

Note. Correlations for husbands are below the diagonal; correlations for wives are above the diagonal.

+p<.10, * p<.05, ** p<.01

Table 6. Zero-order Correlations Among Latent Constructs Between Husbands ($n=305$) and Wives ($n=305$)

Wives	Husbands			
	1	2	3	4
1 Experiences with Racial Discrimination	-.00	-.08	-.01	-.06
2 Depressive Symptoms (composite)	-.03	.12*	.03	-.14**
3 Self-Concept (composite)	.02	.11*	.07	-.01
4 Education	.12*	-.04	.09+	.25**

Note. + $p < .10$, * $p < .05$, ** $p < .01$

Results of Testing Direct Association Hypotheses

This section presents the results of testing the first five hypotheses.

Hypothesis 1: Racial Discrimination and Depressive Symptoms

Results for the models examining the direct association between experiences with racial discrimination and depressive symptoms (Hypothesis 1) are presented separately for husbands (Figure 12) and wives (Figure 13). The four indicators of depressive symptoms had loadings of .73, .54, .79, and .57 for husbands and .65, .50, .68, and .55 for wives. Among husbands, the significant positive association between experiences with racial discrimination and depressive symptoms (.18, $p < .01$) is consistent with Hypothesis 1. For wives, the association between experiences with racial discrimination and depressive symptoms (.06, $p > .10$) was in the expected direction (positive), but the association was not statistically significant.

This is an indication that greater experiences with racial discrimination are positively and significantly associated with greater depressive symptoms for husbands but not for wives. For husbands, 3% of the variance in depressive symptoms is explained by experiences with racial discrimination. For wives, 0% of the variance in depressive symptoms is explained by experiences with racial discrimination. The chi-square to degrees of freedom ratio and the RMSEA indicate an acceptable overall correspondence between the model and the data for husbands ($\chi^2_{(8)} = 1.02$, $\chi^2/df = .12$, RMSEA = .00) but not for wives ($\chi^2_{(8)} = 56.06$, $\chi^2/df = 7.00$, RMSEA = .14).

Figure 12. Model for Husbands.

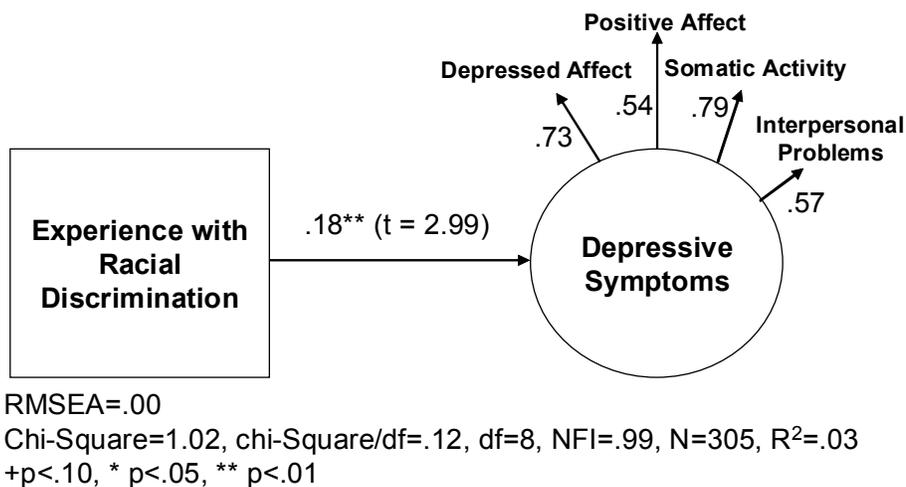
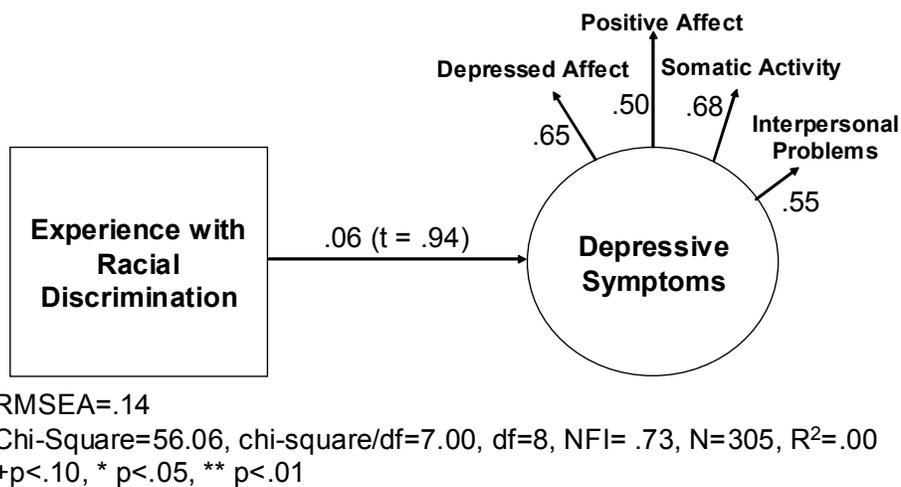


Figure 13. Model for Wives.



Hypothesis 2: Association Moderated by Self-Concept

Figures 14, 15, 16, and 17 present the results for husbands' and wives' models related to Hypothesis 2, which states that there will be a stronger positive association between experiences with racial discrimination and depressive symptoms for those with a low self-concept compared to those with a high self-concept. The four indicators of

depressive symptoms have loadings of .59, .45, .67, and .40 for husbands with a high self-concept; .80, .59, .93, and .67 for husbands with a low self-concept; .43, .72, .62, and .48 for wives' with a high self-concept, and .51, .67, .65, and .61 for wives' with a low self-concept. The findings for husbands supported Hypothesis 2; the path between experiences with racial discrimination and depressive symptoms was significantly stronger for husbands with a lower self-concept (.46, $p < .01$) than for husbands with a higher self-concept (.09, $p > .10$).

I tested the moderating effect of self-concept by comparing the path between experiences with racial discrimination and depressive symptoms for the two groups: those with high and those with low self-concept (mean \pm 1SD split) (Cox, Burchinal, Taylor, Frosch, Goldan, & Kanoy, 2004). I conducted these analyses separately for husbands and wives as follows.

First, I estimated the model for the high self-concept group and the model for the low self-concept group together in the same analysis. In this combined analysis, the association between experiences with racial discrimination and depressive symptoms for husbands with high self-concept and husbands with low self-concept was estimated without any constraint. I then constrained the two paths to be equal in the combined model to determine whether this procedure would significantly reduce the model fit. The change in chi-square resulting from the equality constraint was statistically significant ($\Delta\chi^2_{(1)} = 8.43$), indicating that the association between experiences with racial discrimination and depressive symptoms differed between husbands with a high self-concept and husbands with a low self-concept.

Conversely, the path between experiences with racial discrimination and depressive symptoms was significantly stronger for wives with a higher self-concept (.27, $p < .10$) than for wives with a lower self-concept (.01, $p > .10$). I tested the moderating effect of self-concept by comparing the path between experiences with racial discrimination and depressive symptoms for the two groups—wives with a high self-concept and wives with a low self-concept—using the same procedure used with husbands. The change in chi-square resulting from the equality constraint was statistically significant ($\Delta\chi^2_{(1)} = 10.21$), indicating that the association between experiences with racial discrimination and depressive symptoms differed between wives with a high self-concept and wives with a low self-concept.

Moreover, Figure 18a illustrates that, on average, the level of depressive symptoms was higher among husbands with a low self-concept than among husbands with a high self-concept. The level of self-concept moderated the association between racial discrimination and depressive symptoms. However, as illustrated in Figure 18b, the level of self-concept did not moderate the association between experiences with racial discrimination and depressive symptoms for wives in the expected direction. In contrast, the path between experiences with racial discrimination and depressive symptoms was significantly stronger for wives with a higher self-concept than for wives with a lower self-concept. In the high self-concept models, 0% of the variance in depressive symptoms is explained by experiences with racial discrimination for husbands, whereas 7% of the variance in depressive symptoms is explained by experiences with racial discrimination for wives. In the lower self-concept models, 21% of the variance in depressive symptoms is explained by experiences with racial discrimination for husbands, whereas 0% of the

variance in depressive symptoms is explained by experiences with racial discrimination for wives. The chi-square to degrees of freedom ratio indicated an acceptable overall correspondence between the models and the data for both husbands' and wives'; but the RMSEA indicated a varying level of overall correspondence between the models and the data for husbands and wives ($\chi^2_{(7)} = 12.39$, $\chi^2/df = 1.77$, RMSEA=.11 for high self-concept husbands; $\chi^2_{(6)} = 7.59$, $\chi^2/df = 1.26$, RMSEA = .07 for low self-concept husbands; $\chi^2_{(8)} = 8.27$, $\chi^2/df = 1.03$, RMSEA = .02 for high self-concept wives; $\chi^2_{(8)} = 19.55$, $\chi^2/df = 2.44$, RMSEA = .19 for low self-concept wives). The best fitting model was the model for 'lower self-concept husbands' (Figure 15).

Figure 14. Higher Self-Concept Husbands.

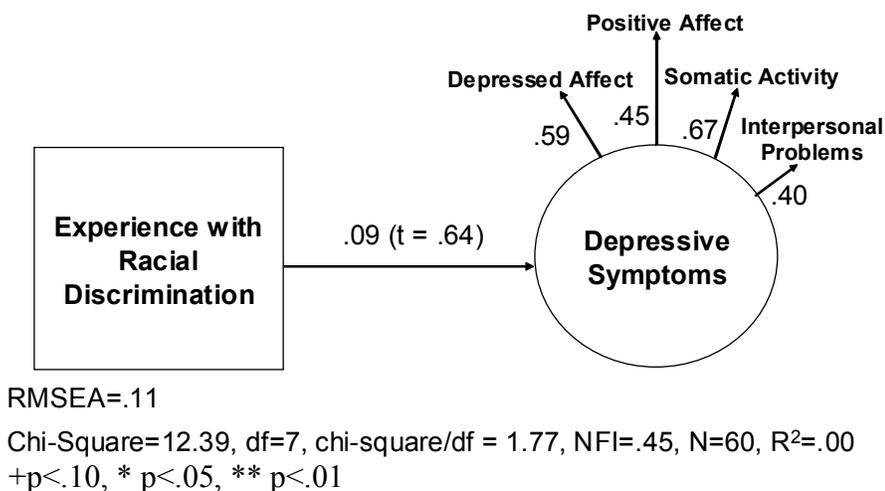
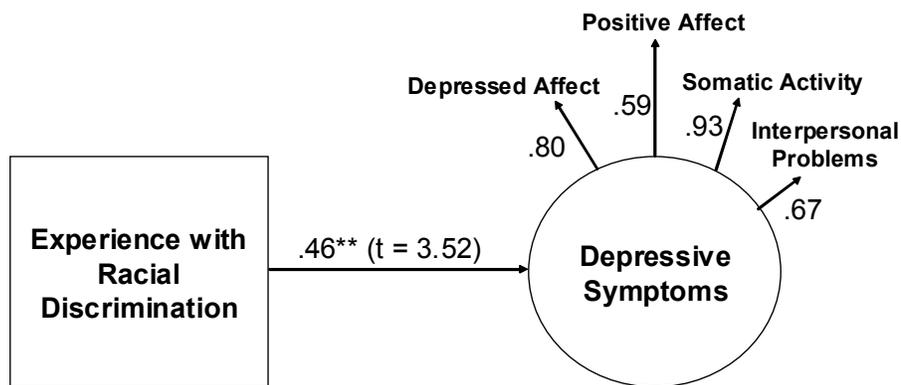


Figure 15. Lower Self-Concept Husbands.

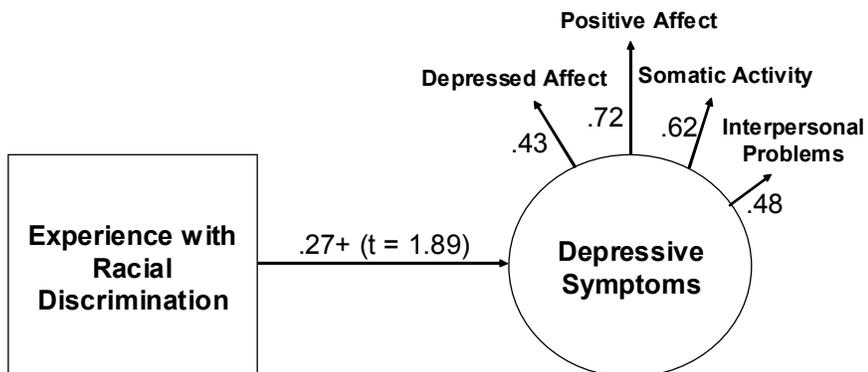


RMSEA=.07

Chi-Square=7.59, df=6, chi-square/df = 1.26, NFI=.91, N=49, $R^2=.21$

+ $p < .10$, * $p < .05$, ** $p < .01$

Figure 16. Higher Self-Concept Wives.

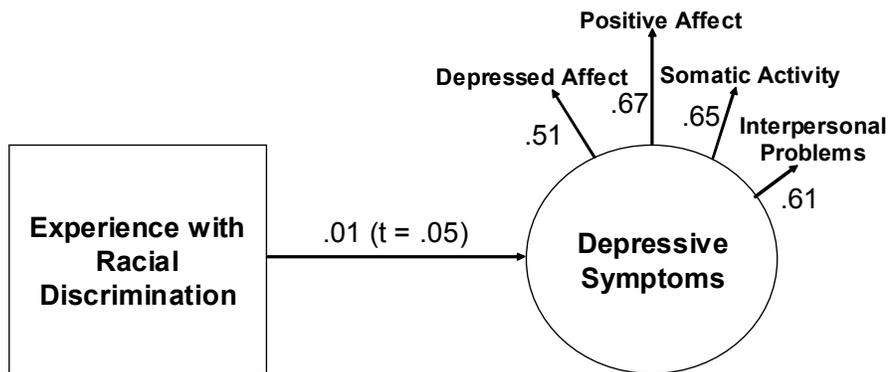


RMSEA=.02

Chi-Square=8.27, df=8, chi-square/df = 1.03, NFI=.80, N=68, $R^2=.07$

+ $p < .10$, * $p < .05$, ** $p < .01$

Figure 17. Lower Self-Concept Wives.

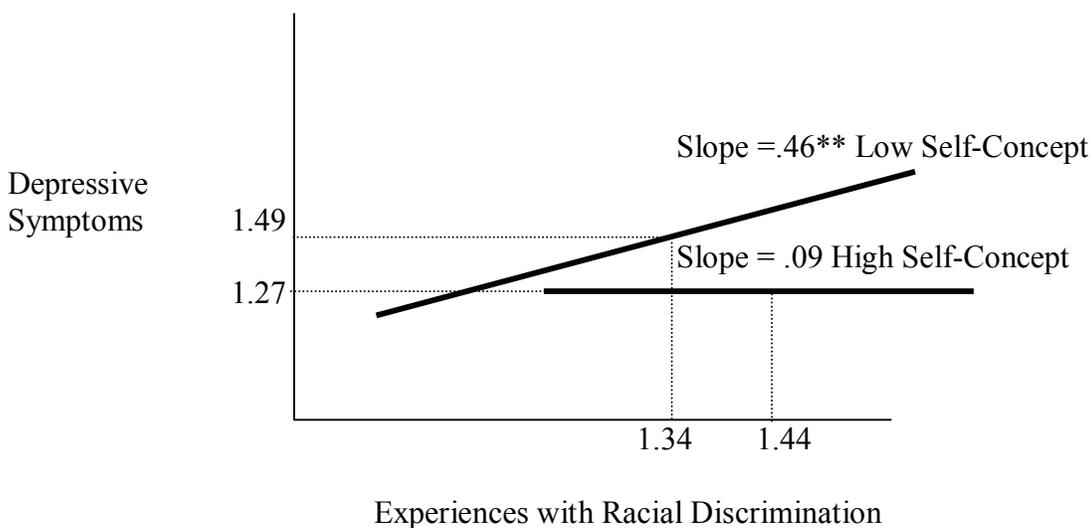


RMSEA=.19

Chi-Square=19.55, df=8, chi-square/df = 2.44, NFI=.51, N=41, R²=.00

+p<.10, * p<.05, ** p<.01

Figure 18a. Moderation by Self-Concept for Husbands.



High Self-Concept Group: Mean Depressive Symptoms = 1.27^a
 (N=60) Mean Experiences with Racial Discrimination = 1.44^b
 Slope = .09

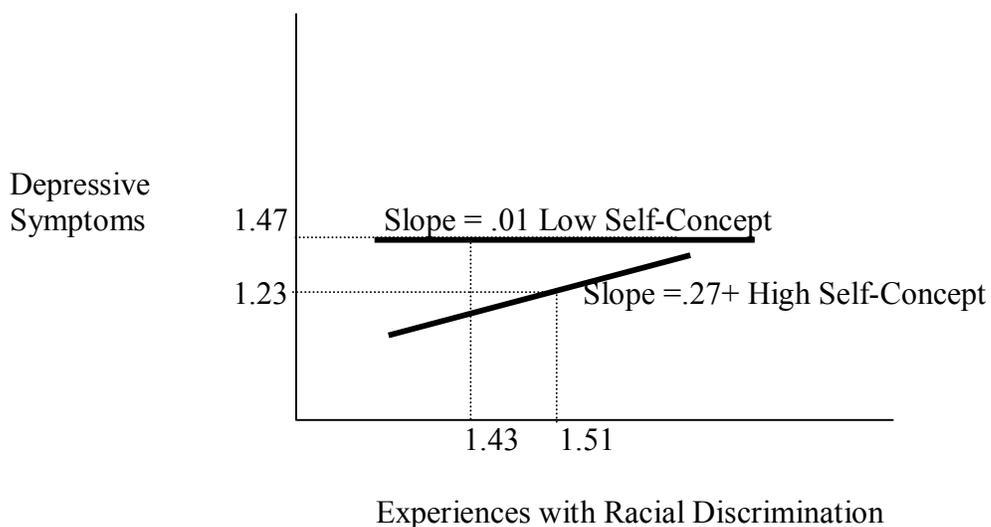
Low Self-Concept Group: Mean Depressive Symptoms = 1.49^a
 (N=49) Mean Experiences with Racial Discrimination = 1.34^b
 Slope = .46** (Depressive symptoms increase at a faster rate for the low self-concept group)

+p<.10, * p<.05, ** p<.01

^a Mean levels of depressive symptoms differ significantly.

^b Mean levels of experiences with racial discrimination do not differ significantly.

Figure 18b. Moderation by Self-Concept for Wives.



High Self-Concept Group: Mean Depressive Symptoms = 1.23^a
 (N=69) Mean Experiences with Racial Discrimination = 1.51^b
 Slope = .27+

Low Self-Concept Group: Mean Depressive Symptoms = 1.47^a
 (N=41) Mean Experiences with Racial Discrimination = 1.43^b
 Slope = .01

+p<.10, * p<.05, ** p<.01

^a Mean levels of depressive symptoms differ significantly.

^b Mean levels of experiences with racial discrimination do not differ significantly.

Hypothesis 3: Racial Discrimination and Self-Concept

Figures 19 and 20 present results for husbands' and wives' models related to Hypothesis 3, which states that there will be a negative association between experiences with racial discrimination and self-concept. The two indicators of self-concept had loadings of .94 and .61 for husbands and .97 and .60 for wives. Contrary to what was predicted in Hypothesis 3, the path between experiences with racial discrimination and self-concept was significant and positive for husbands (.14, $p < .05$) and positive but not significant for wives (.09, $p > .10$). That is, greater perceived experiences with racial discrimination were positively associated with a higher self-concept for husbands but not for wives. In the husbands' model, 2% of the variance in self-concept is explained by experiences with racial discrimination. In the wives' model, 0% of the variance in self-concept is explained by experiences with racial discrimination. The chi-square to degree of freedom ratio and the RMSEA indicated an acceptable overall correspondence between the models and the data for both husbands and wives ($\chi^2_{(1)} = 2.25$, $\chi^2/df = 2.25$, RMSEA = .06 for husbands; $\chi^2_{(1)} = .40$, $\chi^2/df = .40$, RMSEA = .00 for wives).

Figure 19. Model for Husbands.

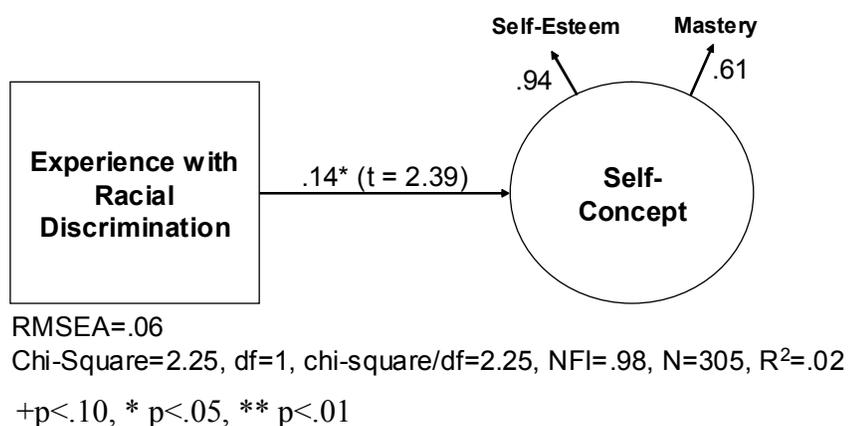
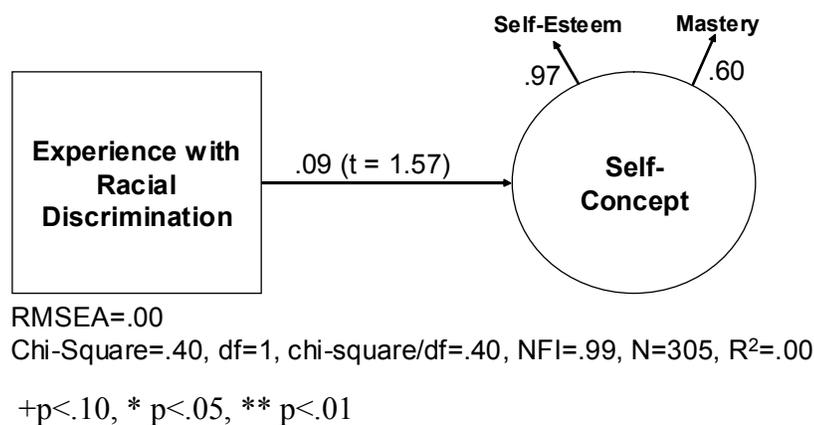


Figure 20. Model for Wives.



Results of Testing the Mediation Hypothesis

Hypothesis 4: Testing Mediation

Figures 21 (a), (b), (c), and (d) show the results for husbands' and wives' models related to Hypothesis 4, which states that self-concept will mediate the association between experiences with racial discrimination and depressive symptoms. Step one for husbands (but not for wives) satisfied the first requirement for mediation: a direct association between experiences with racial discrimination and depressive symptoms (.18, $p < .01$). Steps two and three did not satisfy the necessary requirements for mediation among either husbands or wives; the indirect path from experiences with racial discrimination to depressive symptoms did not reduce the direct path between those two variables (Barney & Kenny, 1986). Thus, the results did not support Hypothesis 4. The chi-square to degree of freedom ratio and the RMSEA indicate an acceptable overall correspondence between the models and the data for husbands ($\chi^2_{(6)} = 1.02$, $\chi^2/df = .17$, RMSEA = .00 for step one; $\chi^2_{(13)} = 26.87$, $\chi^2/df = 2.06$, RMSEA = .05 for steps two and three) but a poor correspondence for wives ($\chi^2_{(8)} = 56.06$, $\chi^2/df = 7.00$, RMSEA = .14 for

step one; $\chi^2_{(13)} = 66.60$, $\chi^2/df = 5.07$, RMSEA = .11 for steps two and three). Two percent of the variance in husbands' depressive symptoms is explained by their experiences with racial discrimination and their self-concept. One percent of the variance in wives' depressive symptoms is explained by their experiences with racial discrimination and their self-concept.

Figure 21a: Step One for Husbands.

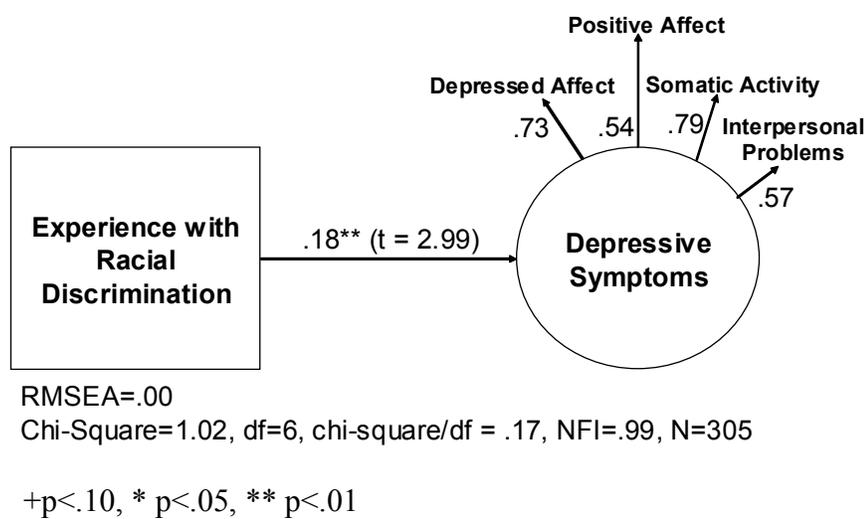
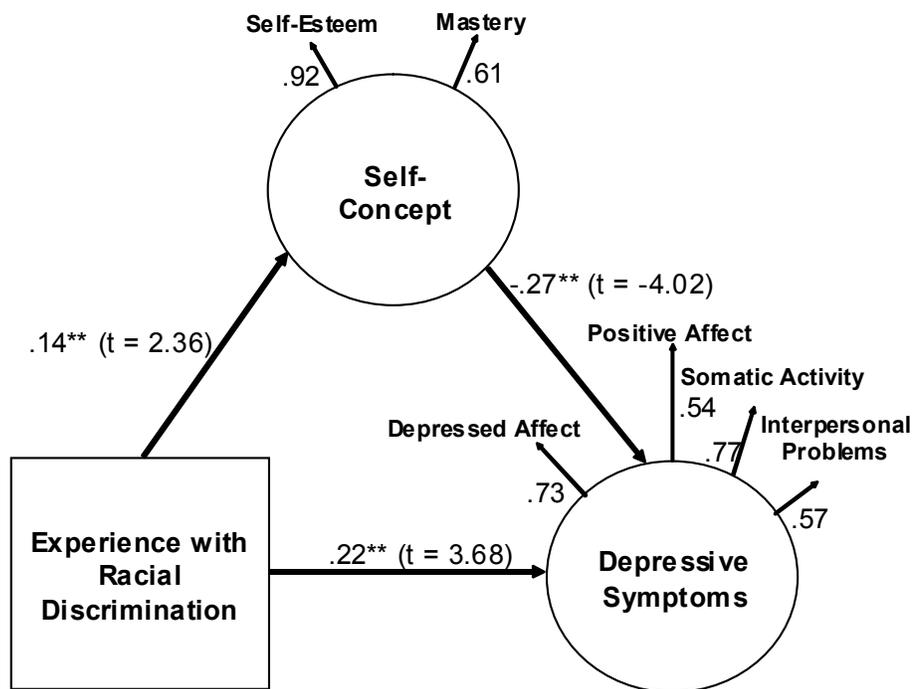


Figure 21b. Steps Two and Three for Husbands.

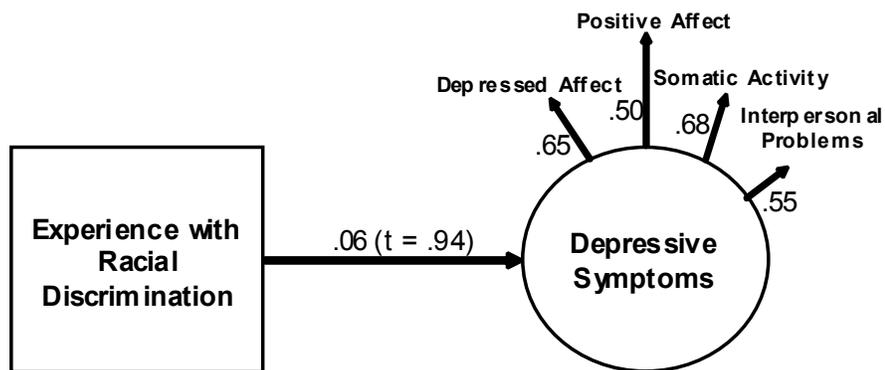


RMSEA=.05

Chi-Square=26.87, df=13, chi-square/df=2.06, NFI=.93, N=305, R²=.02

+p<.10, * p<.05, ** p<.01

Figure 21c. Step One for Wives.

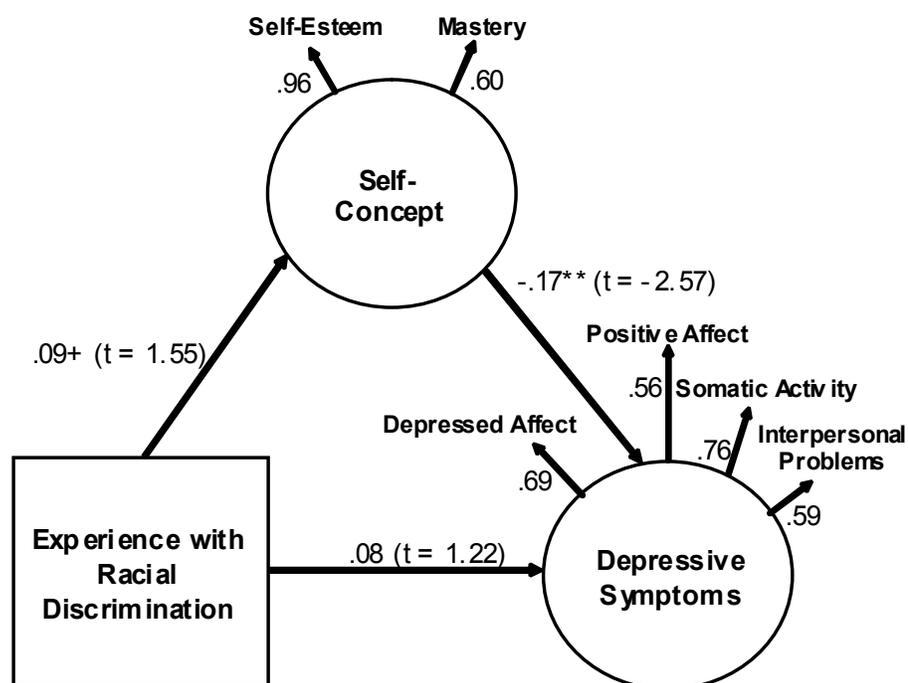


RMSEA=.14

Chi-Square=56.06, df=8, chi-square/df = 7.00, NFI=.73, N=305

+p<.10, * p<.05, ** p<.01

Figure 21d. Steps Two and Three for Wives.



RMSEA=.11

Chi-Square=66.60, df=13, chi-square/df = 5.07, NFI=.82, N=305, $R^2=.01$

+ $p < .10$, * $p < .05$, ** $p < .01$

Results of Testing the Moderation Hypotheses

Hypothesis 5(a): Testing for the Moderation of the Association Between Experiences with Racial Discrimination and Depressive Symptoms by SES

I tested the moderating effect of education by comparing the paths between experiences with racial discrimination and depressive symptoms for two groups: a group low in educational attainment and a group high in educational attainment (mean \pm 1SD split) (Cox, Burchinal, Taylor, Frosch, Goldan, & Kanoy, 2004). Similarly, I tested the moderating effect of family income. Figures 22 to 31 present the results for the models used to test Hypothesis 5a(i, ii). This hypothesis states that African Americans with a

lower level of education will experience a stronger association between experiences with racial discrimination and depressive symptoms than will African Americans with a higher level of education. Hypothesis 5a(ii) states that African Americans with a lower family income will experience a stronger association between experiences with racial discrimination and depressive symptoms than will African Americans with a higher family income. I conducted these analyses separately for husbands and wives.

In support of Hypothesis 5a(i), the path between experiences with racial discrimination and depressive symptoms was stronger (and statistically significant) for husbands with a low level of education (.66, $p < .01$) than for those husbands with a higher level of education (.30, $p < .05$). (See Figures 22 and 23.) Also, in support of Hypothesis 5a(ii), the path between experiences with racial discrimination and depressive symptoms was stronger (and statistically significant) for husbands with a lower family income (.34, $p < .01$) than for husbands with a higher family income (.12, $p > .10$). (See Figures 24 and 25.)

Figures 26 and 27 show that the mean level of depressive symptoms is higher among husbands with a lower level of education (and a lower family income) than among husbands with a higher level of education (and a higher family income). However, the mean level of experiences with racial discrimination is lower among husbands with a lower education or a lower family income than among husbands with a higher education or a higher family income.

Contrary to Hypothesis 5a(i) and Hypothesis 5a(ii), the association between experiences with racial discrimination and depressive symptoms was not significant for wives with a lower level of education (.10, $p > .10$) or for wives with a higher level of

education (.13, $p > .10$). The association between experiences with discrimination and depressive symptoms was not significant for wives with a lower family income (.12, $p > .10$) or a higher family income (.06, $p > .10$). (See Figures 28, 29, 30, and 31.) For husbands with a lower level of education, 43% of the variance in depressive symptoms is explained by their experiences with racial discrimination. For husbands with a higher level of education, only 9% of the variance in depressive symptoms is explained by their experiences with racial discrimination. For wives with a lower level of education, 1% of the variance in depressive symptoms is explained by their experiences with racial discrimination. For wives with a higher level of education, 2% of the variance in depressive symptoms is explained by their experiences with racial discrimination. For husbands with a lower family income, 11% of the variance in depressive symptoms is explained by their experiences with racial discrimination. However, for husbands with a higher family income, 1% of the variance in depressive symptoms is explained by their experiences with racial discrimination. For wives with a lower family income, 1% of the variance in depressive symptoms is explained by their experiences with racial discrimination. For wives with a higher family income, 0% of the variance in depressive symptoms is explained by their experiences with racial discrimination. The chi-square to degree of freedom ratio indicates an acceptable overall correspondence between the models and the data for both husbands and wives ($\chi^2_{(8)} = 15.90$, $\chi^2/df = 1.98$, for lower education husbands; $\chi^2_{(8)} = 16.21$, $\chi^2/df = 2.01$, for higher education husbands; $\chi^2_{(6)} = 2.04$, $\chi^2/df = .34$, for lower family income husbands; $\chi^2_{(6)} = 8.01$, $\chi^2/df = 1.33$, for higher family income husbands; $\chi^2_{(8)} = 11.07$, $\chi^2/df = 1.38$, for lower education wives; $\chi^2_{(8)} = 22.09$,

$\chi^2/df = 2.76$, for higher education wives; $\chi^2_{(8)} = 6.69$, $\chi^2/df = .83$, for lower family income wives; $\chi^2_{(8)} = 28.25$, $\chi^2/df = 3.53$, for higher family income wives).

I tested the statistical significance of the moderating effect of education by comparing the path between experiences with racial discrimination and depressive symptoms for the two groups: husbands with a higher level of education and husbands with a lower level of education. I used the same group comparison procedure discussed earlier. The results indicated that the change in chi-square resulting from the equality constraint was statistically significant ($\Delta\chi^2_{(1)} = 4.00$).

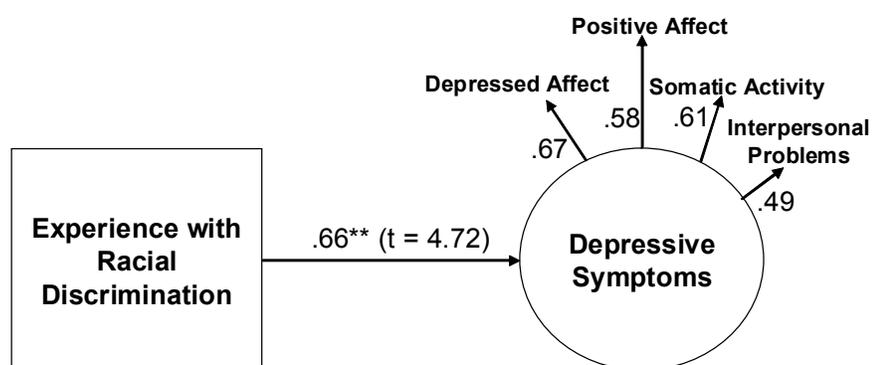
A comparison test for low versus high family income groups showed that the change in the chi-square for one degree of freedom for husbands with high versus low levels of family income was statistically significant ($\Delta\chi^2_{(1)} = 3.54$). This indicates that the association between experiences with racial discrimination and depressive symptoms is moderated by education and family income for husbands in the study.

Similar comparison tests for wives showed that the change in the chi-square for one degree of freedom for those with high versus low levels of education was not statistically significant ($\Delta\chi^2_{(1)} = .92$). The change in the chi-square for one degree of freedom for wives with high versus low levels of family income was also not statistically significant ($\Delta\chi^2_{(1)} = .08$). This indicates that the association between experiences with racial discrimination and depressive symptoms is not moderated by education and family income for wives in the study.

Figures 32 and 33 show that the mean level of depressive symptoms is not significantly higher among wives with a lower level of education (and a lower family income) than among wives with a higher level of education (and a higher family income).

The mean level of experiences with racial discrimination is also not significantly lower among wives with a lower level of education than among wives with a higher level of education. However, the mean level of experiences with racial discrimination is significantly lower among wives with a lower family income than among wives with a higher family income.

Figure 22. Lower Education – Model for Husbands.

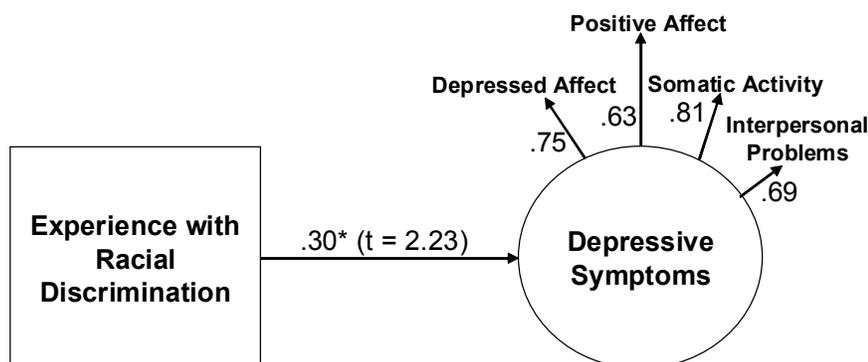


RMSEA=.07

Chi-Square=15.90, df=8, chi-square/df=1.98, NFI=.86, N=95, $R^2=.43$

+ $p < .10$, * $p < .05$, ** $p < .01$

Figure 23. Higher Education – Model for Husbands.



RMSEA=.09

Chi-Square=16.21, df=8, chi-square/df=2.01, NFI=.94, N=90, $R^2=.09$

+ $p < .10$, * $p < .05$, ** $p < .01$

Figure 24. Lower Family Income – Model for Husbands.

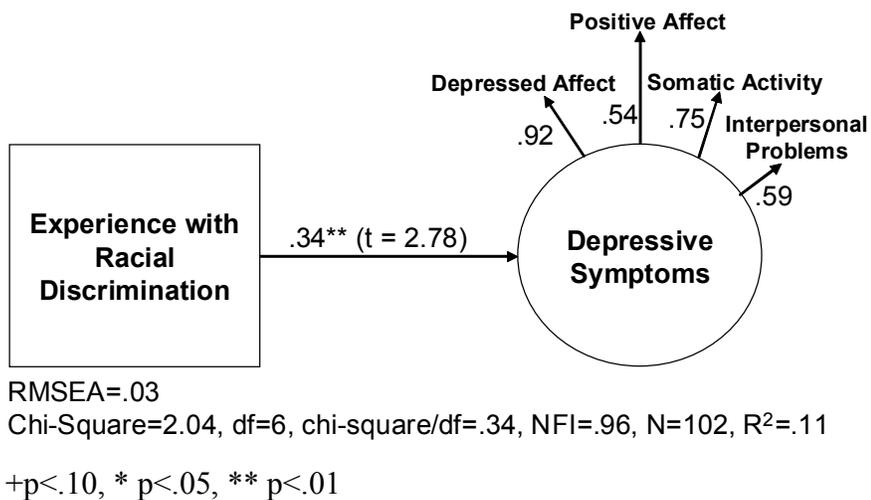


Figure 25. Higher Family Income – Model for Husbands.

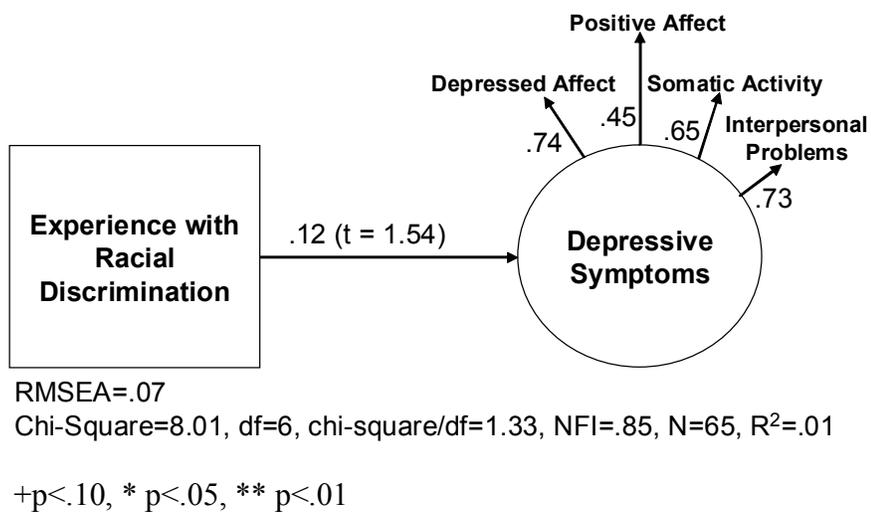
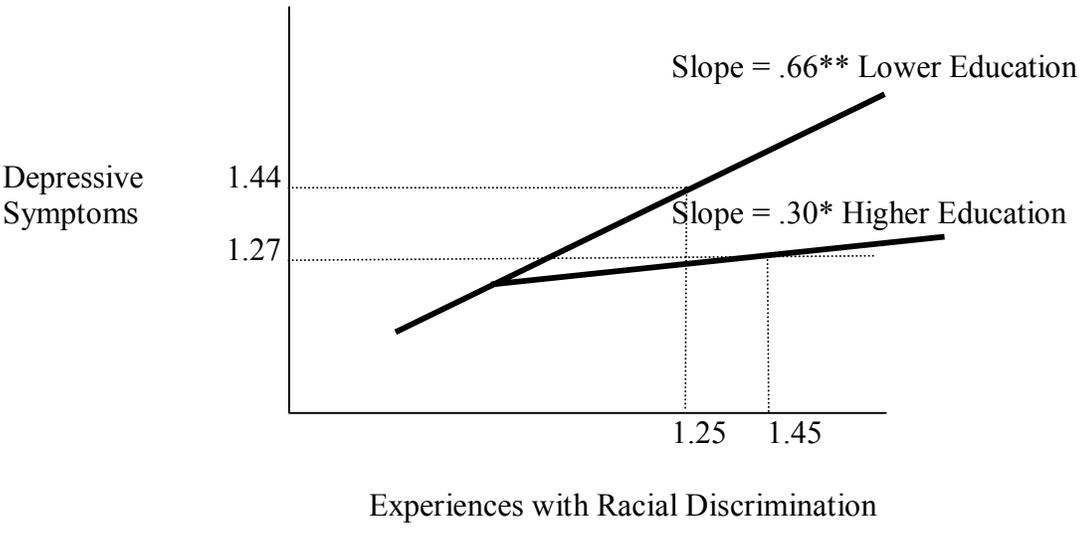


Figure 26. Moderation by Education for Husbands.



High-Education Group: Mean Depressive Symptoms = 1.27^a
(N=90) Mean Experiences with Racial Discrimination = 1.45^b
Slope = .30*

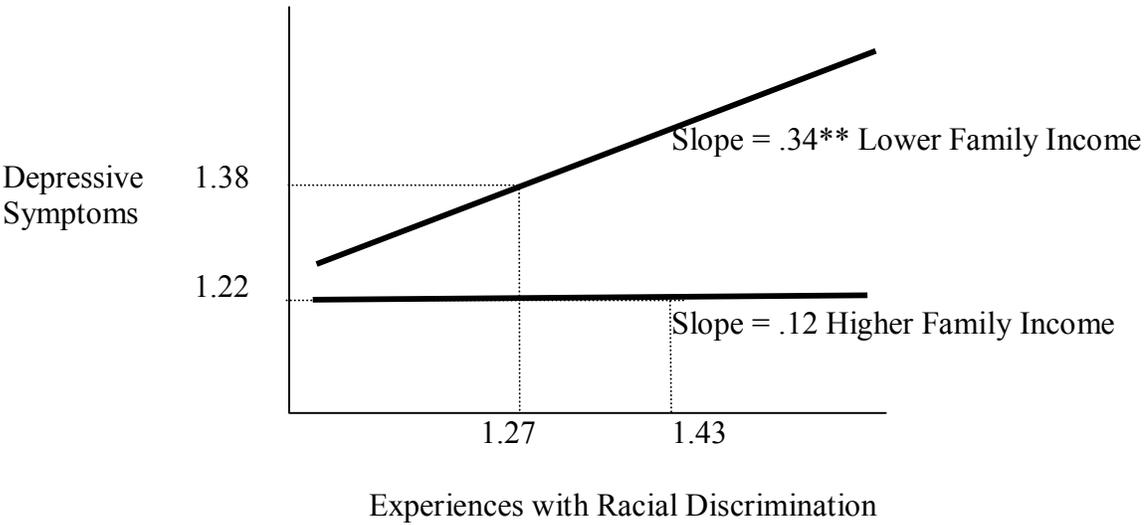
Low-Education Group: Mean Depressive Symptoms = 1.44^a
(N=95) Mean Experiences with Racial Discrimination = 1.25^b
Slope = .66**

+p<.10, * p<.05, ** p<.01

^a Mean levels of depressive symptoms differ significantly.

^b Mean levels of experiences with discrimination differ marginally.

Figure 27. Moderation by Family Income for Husbands.



Higher Family Income: Mean Depressive Symptoms = 1.22^a
(N=65) Mean Experiences with Racial Discrimination = 1.43^b
Slope = .12

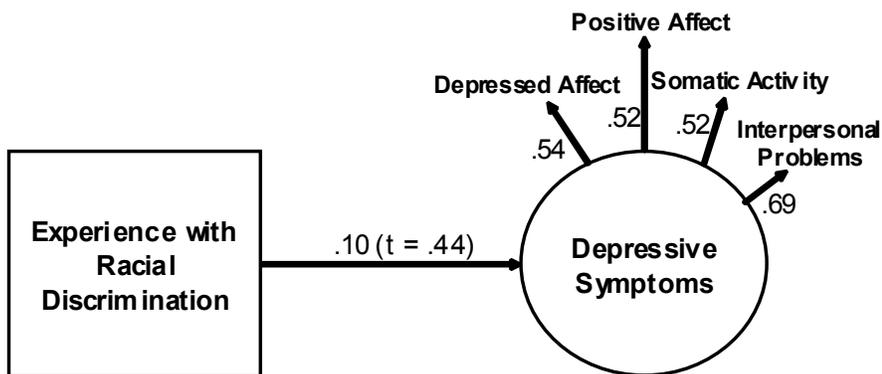
Lower Family Income: Mean Depressive Symptoms = 1.38^a
(N=102) Mean Experiences with Racial Discrimination = 1.27^b
Slope = .34**

+p<.10, * p<.05, ** p<.01

^a Mean levels of depressive symptoms differ significantly.

^b Mean levels of experiences with discrimination differ significantly.

Figure 28. Lower Education – Model for Wives.

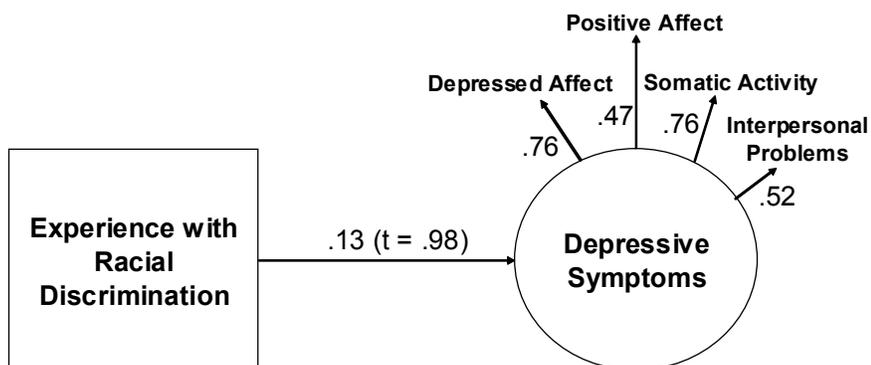


RMSEA=.11

Chi-Square=11.07, df=8, chi-square/df=1.38, NFI=.56, N=31, R²=.01

+p<.10, * p<.05, ** p<.01

Figure 29. Higher Education – Model for Wives.

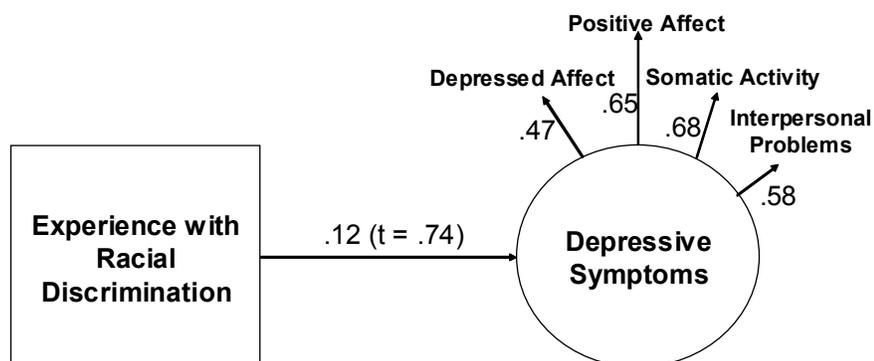


RMSEA=.15

Chi-Square=22.09, df=8, chi-square/df=2.76, NFI=.64, N=71, R²=.02

+p<.10, * p<.05, ** p<.01

Figure 30. Lower Family Income – Model for Wives.

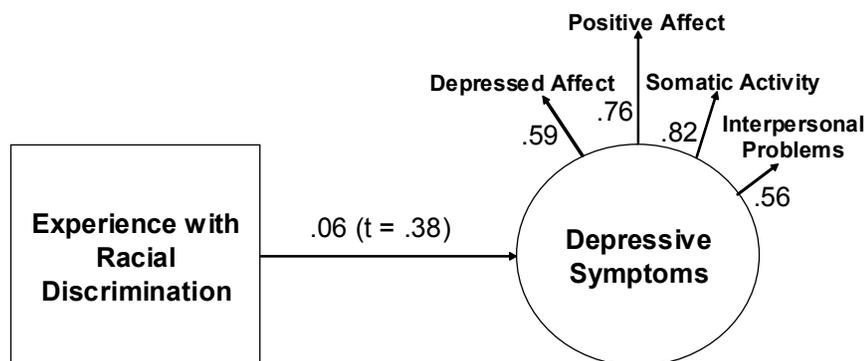


RMSEA=.00

Chi-Square=6.69, df=8, chi-square/df=.83, NFI=.82, N=57, R²=.01

+p<.10, * p<.05, ** p<.01

Figure 31. Higher Family Income – Model for Wives.

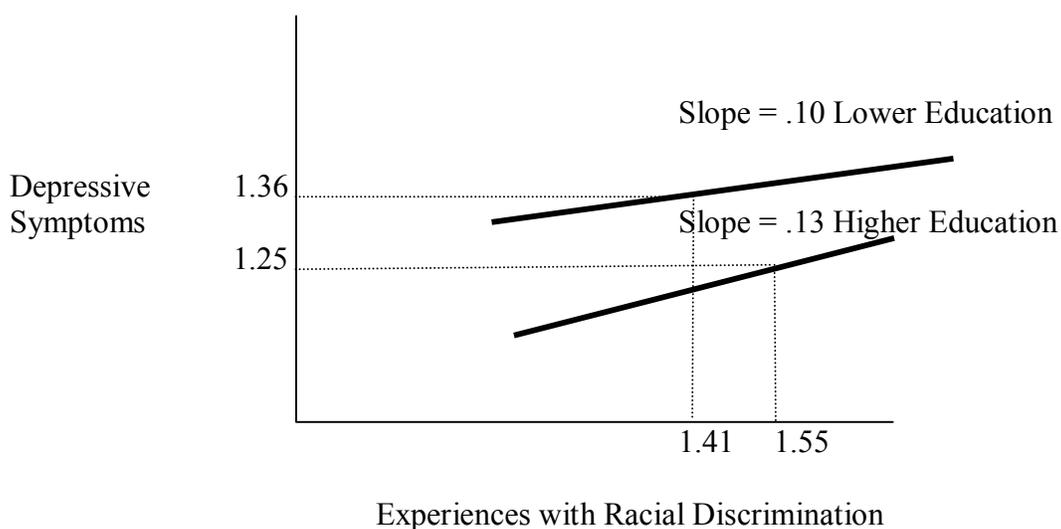


RMSEA=.23

Chi-Square=28.25, df=8, chi-square/df=3.53, NFI=.51, N=47, R²=.00

+p<.10, * p<.05, ** p<.01

Figure 32. Moderation by Education for Wives.



High-Education Group: Mean Depressive Symptoms = 1.25^a
 (N=71) Mean Experiences with Racial Discrimination = 1.55^b
 Slope = .13

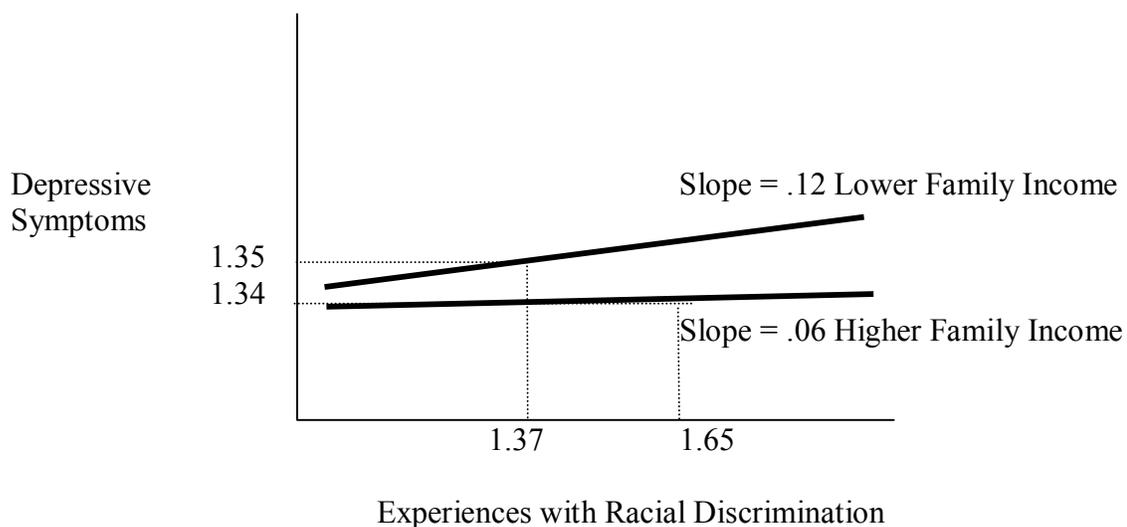
Low-Education Group: Mean Depressive Symptoms = 1.36^a
 (N=31) Mean Experiences with Racial Discrimination = 1.41^b
 Slope = .10

+p<.10, * p<.05, ** p<.01

^a Mean levels of depressive symptoms differ marginally.

^b Mean levels of experiences with discrimination do not differ significantly.

Figure 33. Moderation by Family Income for Wives.



Higher Family Income: Mean Depressive Symptoms = 1.34^a
 (N=47) Mean Experiences with Racial Discrimination = 1.65^b
 Slope = .06

Lower Family Income: Mean Depressive Symptoms = 1.35^a
 (N=57) Mean Experiences with Racial Discrimination = 1.37^b
 Slope = .12

+p<.10, * p<.05, ** p<.01

^a Mean levels of depressive symptoms do not differ significantly.

^b Mean levels of experiences with discrimination differ significantly.

Hypothesis 5b(i): Testing Moderation of the Association Between Experiences with Racial Discrimination and Depressive Symptoms by Gender

To test for the moderating effect of gender on the association between experiences with racial discrimination and depressive symptoms, the separate models for husbands and wives were combined into a single model. This combined model specified correlations between identical constructs for husbands and wives. For example, the depressive symptoms of husbands were allowed to correlate with the depressive symptoms of wives in the combined model. An initial estimation of the combined model involved no constraint on the association between experiences with racial discrimination and depressive symptoms such that the association was freely estimated for both husbands and wives. Coefficients for the combined model did not differ significantly from those obtained when the model was estimated separately for husbands and wives. The next step taken in order to test for the moderating effect of gender involved estimating the combined model a second time with the addition of a constraint; the association between experiences with racial discrimination and depressive symptoms was constrained to be equal for husbands and wives. A comparison of the chi-squares for the constrained and unconstrained models indicates whether the addition of the equality constraint significantly reduces the fit of the model. The change in chi-square resulting from the equality constraint was not significant ($\Delta\chi^2_{(1)} = 1.72$), indicating that the association between experiences with racial discrimination and depressive symptoms does not differ significantly between husbands and wives after taking the dependency between husbands and wives into account.

Hypothesis 5b(ii): Testing for the Moderation of the Association Between Experiences with Racial Discrimination and Self-Concept by Gender

To test for the moderating effect of gender on the association between experiences with racial discrimination and self-concept, I used the same gender comparison procedure discussed earlier. The results showed that the change in chi-square resulting from the equality constraint was not statistically significant ($\Delta\chi^2_{(1)} = .39$), indicating that the association between experiences with racial discrimination and self-concept did not differ between husbands and wives.

Results of Testing the Dyadic Hypothesis

Hypothesis 6: Testing the Dyadic Hypothesis

Figure 34 presents the results for the husband-wife dyadic model proposed in Hypothesis 6, which states that a spouse's experiences with racial discrimination will be negatively associated with a partner's self-concept and positively associated with a partner's depressive symptoms. Contrary to Hypothesis 6, husbands' experiences with racial discrimination were not negatively associated with wives' self-concept (.05, $p > .10$). Wives' experiences with racial discrimination were not significantly associated with husbands' self-concept (-.01, $p > .10$). Also, contrary to Hypothesis 6, husbands' experiences with racial discrimination were not associated with wives' depressive symptoms (-.06, $p > .10$), and similarly wives' experiences with racial discrimination were not associated with husbands' depressive symptoms (-.08, $p > .10$). Four percent of the variance in wives' depressive symptoms is explained by the model, whereas 11% of the variance in husbands' depressive symptoms is explained by the model. The chi-square to

degrees of freedom ratio and the RMSEA indicate an acceptable correspondence between the model and the data ($\chi^2_{(72)} = 136.17$, $\chi^2/df = 1.89$, RMSEA = .05). The results for the dyadic model show a significant dyadic association between husbands' depressive symptoms and wives' depressive symptoms and a lack of support for inter-individual transactional influences between husbands and wives.

CHAPTER 5: DISCUSSION

The present study had two primary goals. The first focused on examining the association between experiences with racial discrimination and depressive symptoms through inter-individual and intra-individual processes among African American couples. The second focused on examining the moderating effects of self-concept, education, family income, and gender. These two goals were accomplished by testing six hypotheses.

In general, the direct association hypotheses and the moderation hypotheses were fully or partially supported, whereas the mediation hypotheses were not. Among the direct association hypotheses, Hypotheses 1—predicting a positive association between experiences with racial discrimination and depressive symptoms—was partially supported by the data. Hypothesis 2—predicting a stronger positive association between experiences with racial discrimination and depressive symptoms for those with a low self-concept compared to those with a high self-concept—was partially supported by the data. Hypothesis 3—predicting a negative association between experiences with racial discrimination and self-concept—was not supported by the data. Hypothesis 4—self-concept mediating the association between experiences with racial discrimination and depressive symptoms—was not supported by the data. Hypothesis 5—education, family income, and gender moderating the association between experiences with racial discrimination and depressive symptoms—was partially supported by the data. Hypothesis 6—predicting transactional and reciprocal associations between spouses—was largely unsupported by the data.

In the sections that follow, each hypothesis will be discussed in more detail. That will be followed by a discussion of the strengths of the study, suggestions for future research, limitations of the study and its contribution to the literature.

Hypothesis 1

Experiences with racial discrimination were found to be significantly and positively associated with husbands' depressive symptoms. As explained earlier, recurring experiences with racial discrimination for African Americans have been labeled as Mundane Extreme Environmental Stress (MEES). Stressful experiences in general have been shown to be associated with depressive symptoms (Kessler, 1997). As posited in the stress process theory (Pearlin et al., 1981), such stressful experiences can be directly or indirectly associated with depressive symptoms. Stressful experiences such as those associated with racial discrimination may directly give rise to feelings of hopelessness, loneliness, and negative emotions, which are closely associated with depressive symptoms. In the face of experiences with racial discrimination, one may feel hopeless and powerless, which may in turn, generate depressive symptoms (Ross & Mirowsky, 1989). Unlike findings from previous studies (NIMH, 2004; Pearlin, 1989; Weich, Sloggett, & Lewis, 2001), indicating that the level of depressive symptoms of women is higher than the level of depressive symptoms of men in general, the findings from this study suggest that the level of depressive symptoms is similar among men and women. Wives' experiences with racial discrimination were not significantly associated with their depressive symptoms, suggesting that wives may be more resilient or less vulnerable to racial discrimination than husbands.

Thus, the results for wives in the present study are not consistent with the stress process theory. One explanation may be that racial discrimination is not necessarily a stressful experience for wives. The similarity in the mean level of exposure to experiences with racial discrimination between husbands and wives indicates that it might be the difference in vulnerability (not in the exposure) to racial discrimination that accounts for the gender difference in the associations between racial discrimination and depressive symptoms. So, perhaps wives are less vulnerable (or more resilient) to racial discrimination than are husbands. There might be several reasons as to why wives in the study are less vulnerable to stressful experiences, such as racial discrimination. For example, as explained by the tend-and-befriend theory, the greater social skills (e.g., the ability to network, elicit support, and nurture) of women might play a buffering role which decreases the effects of stress such as depressive symptoms. That is one possible explanation. The work of Noh and his colleagues (1999) suggest another explanation.

Noh et al. (1999) identified ‘forbearance’ (i.e., accepting discrimination passively as a fact of life without confrontation or avoiding discriminatory experiences) as a coping mechanism. That is, they consider forbearance as “cognitive and behavioral responses that may be characterized as passive acceptance and avoidance” (Noh et al., 1999, p. 201). Forbearance may protect individuals from the stressful experiences of racial discrimination by facilitating the avoidance or passive acceptance of confrontations (Noh et al., 1999). Although they were not tested in the present study, I also argue that passive coping mechanisms such as forbearance as well as religiosity may help to protect women more than men from the adverse effects of experiences with racial discrimination because women are more likely than men to possess such passive coping resources (Stanton &

Snyder, 1995). Religious individuals possess relatively high dissociative tendencies; thus, they tend to depersonalize stressful events (Noyes & Kletti, 1977). These avoidant tendencies may operate as a coping mechanism (Noyes & Kletti, 1977).

Hypothesis 2

Experiences with racial discrimination were associated with depressive symptoms positively and more strongly among husbands who have a lower self-concept than among husbands who have a higher self-concept (Figure 14 and 15). This difference was statistically significant. This moderating effect is illustrated well in Figure 18a. It shows that the average level of depressive symptoms was significantly higher (a more severe level of depressive symptoms) among husbands who have a lower self-concept than among husbands who have a higher self-concept. Figure 18a also indicates that the difference in the levels of depressive symptoms between low and high self-concept groups increases with the increase in the level of experiences with racial discrimination (fanning effect).

The results for husbands correspond well with the moderation notion of the stress process theory. According to the theory, self-concept will moderate the association between stressful experiences (i.e., experiences with racial discrimination) and stress symptoms (i.e., depressive symptoms). This moderation is due to the protection provided by self-concept; that is, a high self-concept may protect individuals from the effects of stressful experiences such as racial discrimination. This might be attributable to an individual's ability to change the meaning of the experience so that it is perceived as a lesser threat (Pearlin, 1989). Moreover, individuals with greater mastery/control are more

likely to cope with a stressful experience by seeking a solution to a negative event. That, too, may function as a buffer. For example, an individual with greater mastery/control who is being followed by security in a store may voice concern with the owner or manager, whereas, an individual with low levels of mastery/control may do nothing.

A rather puzzling moderating effect is illustrated well in Figure 18b. Interestingly, in contrast to the findings obtained for husbands, the association between experiences with racial discrimination and depressive symptoms were stronger among wives who had a higher self-concept than among wives' who had a lower self-concept. Yet, the average level of depressive symptoms was significantly higher (a more severe level of depressive symptoms) among wives who had a lower self-concept than among wives who had a higher self-concept. Figure 18b also indicates that the difference in the levels of depressive symptoms between low and high self-concept groups decreases with the increase in the level of experiences with racial discrimination (ceiling effect).

Thus, the results suggest that although self-concept serves as a coping resource for husbands, it does not appear to serve as a coping resource for wives. Wives with a higher self-concept are in fact experiencing stronger positive associations between stressful experiences (i.e., racial discrimination) and depressive symptoms than are wives with a lower self-concept. These stronger associations may be attributable to experiences with racial discrimination that disrupt the strong sense of identity among wives who possess a high self-concept. Such identity disruptions may generate depressive feelings (Brown & McGill, 1989). Moreover, contrary to findings reported in previous studies suggesting that wives typically have lower levels of self-concept than husbands (Kling, Hyde, Showers, & Buswell, 1999), the African American wives in the present study

exhibited levels of self-concept similar to that of their husbands.

Hypothesis 3

Contrary to my expectations, experiences with racial discrimination were found to be significantly and positively associated with husbands' self-concept. This association was also positive but not significant for the wives. Thus, the results did not support the stress process theory which posits that stressful experiences diminish self-esteem and mastery (Pearlin et al., 1981). It appears that experiences with racial discrimination did not erode or negatively associate with self-concept; instead, self-concept positively associated with experiences with racial discrimination. This positive association indicates that higher levels of self-concept are associated with greater perceptions of racial discrimination.

On the other hand, if previously discussed social-psychological mechanisms such as reflected appraisal, social comparison, and self-evaluation, which are used to explain the erosion of self-concept (as a result of experiences with racial discrimination), do operate, then experiences with racial discrimination should be negatively associated with self-concept. However, the findings indicate that experiences with racial discrimination are not negatively associated with self-concept. Thus, although the present study does not specifically address these suggested mechanisms, I argue that since the association between experiences with racial discrimination and self-concept is not negative, these mechanisms may not link African Americans' experiences with racial discrimination to their self-concept.

Reflected appraisal is thought to be the manner in which others see and

consequently interact with an individual (Rosenberg, 1979); such interactions are believed to affect an individual's self-concept (Cooley, 1902). However, the negative interpersonal interactions experienced by African American husbands and wives in the current study did not provide evidence that reflected appraisal eroded self-esteem. I draw this conclusion because being treated negatively (discrimination) was not linked to lower self-concept. Thus, unlike the findings of Roberts and Monroe (1992), the African Americans in the present study may not rely on the approval of others (particularly the approval of other racial/ethnic groups) to maintain their self-esteem. This suggests that some African Americans may not internalize the negative manner in which others evaluate them. This response may be attributed to strong intra-racial group relations that enhance racial identity, thereby protecting self-concept even in a discriminatory environment. Research suggests that individual psychological characteristics such as ethnic identity may also contribute to negative health outcomes (McMahon & Watts, 2002).

For example, several studies have shown that individuals who possess a high awareness of their ethnic identity perceive and feel more discriminated against than individuals who possess a low awareness of their ethnic identity (Mossakowski, 2003; Sellers et al., 2003). I argue that this perception may also be true in the case of self-concept. Individuals who possess a high level of self-concept may perceive and feel more discriminated against than individuals who possess a low level of self-concept. Perhaps this is because self-concept (assessed using mastery and self-esteem) is a reflection of ethnic identity.

Based on the results of the present study, the *social comparison* perspective is

also not supported. Thus, the notion of self-evaluation (in this case, comparing self to others) (Bem, 1967) may not occur in the context of racial discrimination. Perhaps the inability to achieve a goal due to discrimination does not lead to harsh self-evaluation or an internalization of a negative view of self among African Americans in this study. Also, African Americans who are experiencing racial discrimination do not seem to negatively compare themselves to individuals who are not experiencing discrimination. Thus, it appears that the social comparison mechanism does not link African Americans' experiences with racial discrimination to their self-concept. However, self-concept may be directly associated with mental health outcomes.¹

Hypotheses 4

The stress process theory posits two central associations: (a) stressful experiences erode one's self-concept, and (b) positive self-concept decreases depressive symptoms. These two important components of the theory correspond to two indirect paths (the path from experiences with discrimination to self-concept and the path from self-concept to depressive symptoms) linking discrimination to depressive symptoms. Self-concept did not mediate the association between experiences with racial discrimination and

¹Although not a component of my hypotheses, I did examine the association between self-concept and depressive symptoms. I present this information only because it is an aspect of the stress process theory. The path between self-concept and depressive symptoms was significant and negative for husbands (-.24, $p < .01$) and wives (-.25, $p < .01$). That is, a greater self-concept was associated with fewer depressive symptoms. Self-concept was significantly and negatively associated with depressive symptoms for both husbands and wives in this study suggesting that self-concept directly reduces the generation of depressive symptoms. Feelings of powerlessness, lack of control, and worthlessness may generate depressive symptoms (Ross & Mirowsky, 1989). Although experiences with racial discrimination did not decrease self-concept among the participants in the present study, lower levels of self-concept did increase depressive symptoms. Previous studies support this finding, showing that a decrease in self-concept is associated with greater depressive symptoms (Ali & Avison, 1997; Corning, 2002; Lever, 2005; Turner et al., 2001). As a factor reflecting resiliency, self-concept directly reduces the generation of depressive symptoms. Thus, corroborating previous studies, the results of the present study support the association between self-concept and depressive symptoms, which is central to the stress process theory.

depressive symptoms. This is because, the direct association between experiences with racial discrimination and self-concept was not significant for wives. Although the direct association was significant for husbands, it was positive instead of negative; moreover, the association was not reduced when the proposed mediator, self-concept, was added to the model. The inability to provide evidence for this indirect association undermines the ability of the stress process theory to explain the association between discrimination and depressive symptoms.

Hypothesis 5a

The moderating hypothesis involving education, family income, and gender was partially supported. The association between experience with racial discrimination and depressive symptoms was statistically significant and stronger for husbands with a lower level of education than for husbands with a higher level of education. The association between experiences with racial discrimination and depressive symptoms was also statistically significant and stronger for husbands with a lower family income than for husbands with a higher family income. The association between experiences with racial discrimination and depressive symptoms was not significant for wives with a higher level of education or higher family income, nor was it significant for wives with a lower level of education or lower family income.

The results may have shown a strong positive association between experiences with racial discrimination and depressive symptoms for husbands with a lower level of education than for husbands with higher education, because education is an important resource that can buffer the influence of racial discrimination on depressive symptoms.

For example, greater levels of education can increase the ability to cope with experiences with racial discrimination through passive (e.g., understanding the experiences and not reacting) or active (e.g., understanding the experiences and legally challenging the experiences) means. A higher mean level of depressive symptoms and a lower mean level of experiences with racial discrimination among husbands with a lower level of education (as depicted in Figure 26) suggest that they are more vulnerable to depressive symptoms and perceive less racial discrimination than do husbands with a higher level of education. Figure 26 also suggests that the difference in the levels of depressive symptoms between low and high education groups increases with the increase in the level of experiences with racial discrimination (fanning effect).

The results may have shown a strong positive association between experiences with racial discrimination and depressive symptoms for husbands with a lower family income than for husbands with a higher family income, because family income (like education) is an important resource that can buffer the influence of racial discrimination on depressive symptoms. For example, greater levels of family income may provide individuals with the financial ability to seek help for their depressive symptoms. Greater income may also provide individuals with the financial ability to legally challenge discrimination. A higher mean level of depressive symptoms and a lower mean level of experiences with racial discrimination among husbands with a lower family income (as depicted in Figure 27) also suggest that they are more vulnerable to depressive symptoms and perceive less racial discrimination than do husbands with a higher family income. Figure 27 also suggests that the difference in the levels of depressive symptoms between low and high income groups increases with the increase in the level of experiences with

racial discrimination (fanning effect).

For wives, the associations between experiences with racial discrimination and depressive symptoms were not significant—regardless of the level of education or income. For wives, education may not moderate the association between experiences with racial discrimination and depressive symptoms as predicted in Hypothesis 5. That is, for wives, greater levels of education may not increase the ability to cope with experiences with racial discrimination using passive (e.g., understanding the experiences and not reacting) or active (e.g., understanding the experiences and legally challenging the experiences) coping skills.

Hypothesis 5b(i)

The analysis of data for husbands in the sample indicated that the association between experiences with racial discrimination and depressive symptoms was significant and positive whereas for wives the association was not significant. The difference between these two associations was statistically significant before taking into account dyadic correlations between husbands and wives (see Figure 35). However, when dyadic correlations between husbands and wives were taken into account, the difference between these two associations was not statistically significant (see Figure 36). This may be due to the fact that significant correlations between husbands' and wives' depressive symptoms reduce the statistical significance of the gender difference in the associations.

Figure 35. Before Dyadic Correlations

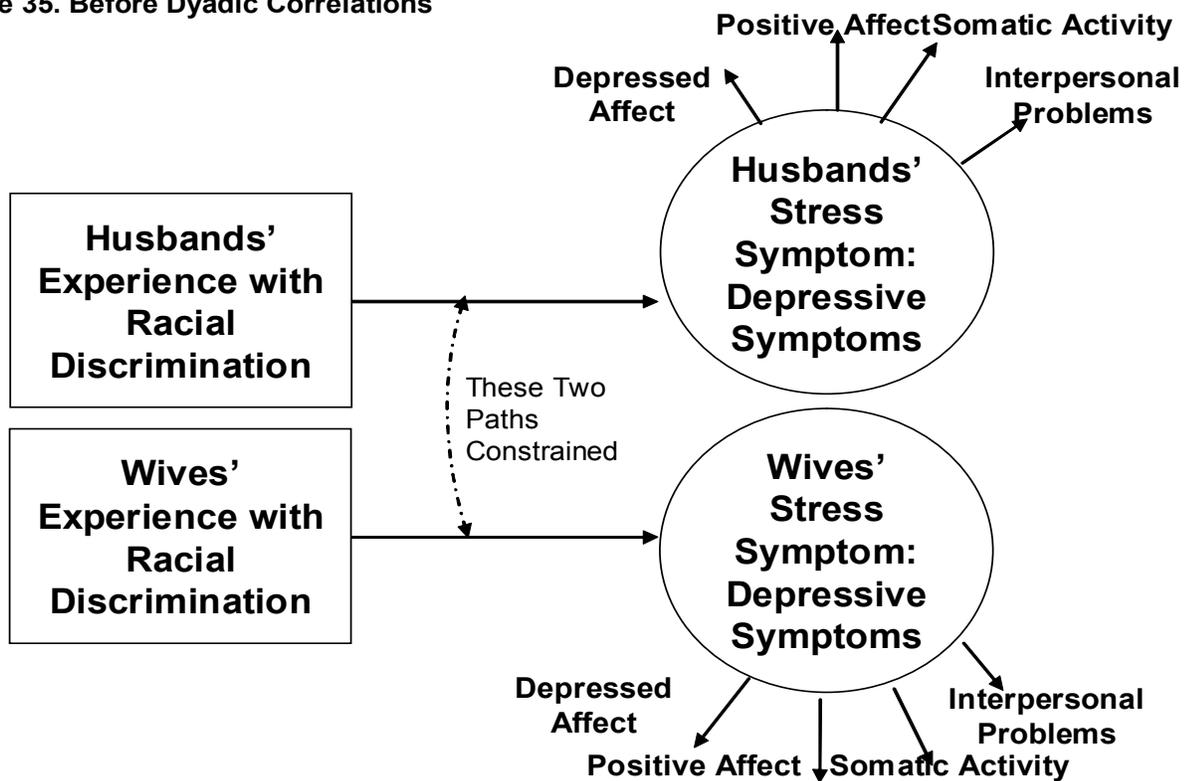
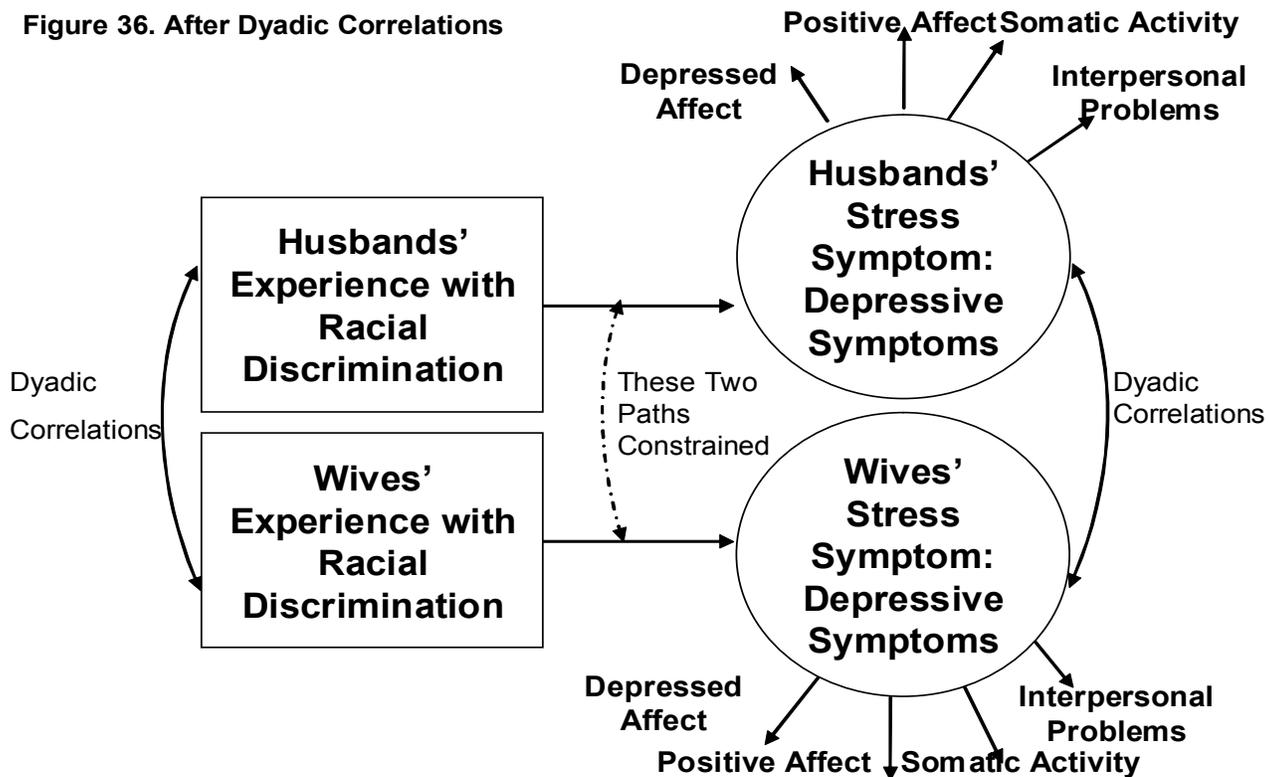


Figure 36. After Dyadic Correlations



Hypothesis 5b(ii)

Although the association between discrimination and self-concept was significant for men but not for women, men and women did not statistically differ from one another. Thus, contrary to my hypothesis, African American men—when compared to women—did not experience a stronger negative association between experiences with racial discrimination and self-concept. What is most interesting is that the association between discrimination and self-concept was positive instead of negative—indicating that self-concept increases as discrimination increases.

Hypothesis 6

Hypothesis 6 (predicting transactional and reciprocal influences between spouses) was largely unsupported by the results. Although unexpected, these are very important and novel findings. There was a lack of transactional and reciprocal associations between spouses with regard to the effects of racial discrimination. As shown by the results obtained for the dyadic model, neither husbands' nor wives' experiences with racial discrimination were significantly associated with their spouses' self-concept or depressive symptoms. It appears then that these processes largely operate within husbands and within wives (intra-individual processes).

Transactional processes were thought to occur through shared feelings and behaviors in the dyadic relationship. The results for Hypothesis 6, however, suggest that feelings and behaviors associated with experiences of racial discrimination may not be shared between spouses. Although individuals are embedded in families and communities—as described in the ecological theory (Bronfenbrenner, 1986), it seems that

experiences with racial discrimination in society may not carry over into couple interactions. Perhaps new spouses do not yet feel comfortable enough to share negative experiences such as discrimination with one another. It appears that they may deliberately protect (shield) their close relationships from outside influences. The findings obtained from tests of this hypothesis and the others are intriguing. They underscore not only the strengths of the study, but the need for future research as well. Nevertheless, the intimacy of the shared couple environment may create dependencies or reciprocities in depressive symptoms between husbands and wives. For example, husbands' experiences with racial discrimination were associated with their depressive symptoms and their depressive symptoms were, in turn, significantly associated with wives' depressive symptoms.

Strengths of the Study

This study has four major strengths. First, it included both husbands and wives. The inclusion of both spouses made it possible to investigate the intra-individual and inter-individual etiological process of stress related to racial discrimination.

Second, the study included a relatively large sample of African American husbands and wives. The 305 husbands and 305 wives provided the necessary statistical power to investigate the hypothesized associations. Moreover, the study participants answered most of the questions. Thus, less than 1% of the data were missing, which further enhanced the quality of the analyses.

Third, the use of structural equation modeling provided distinctive methodological advantages for the present study that involved the: (a) creation of latent constructs with multiple indicators, (b) use of confirmatory factor analysis to identify

factors within items, (c) test of complex processes (mediation and moderation), (d) test of reciprocity between study constructs, (e) investigation of intra-individual processes, and (f) investigation of inter-individual processes. These advantages enhanced my tests of the six hypotheses.

Fourth, a clear strength of the study was its use of well-established and well-tested measures. The measure *experiences with racial discrimination* was an adaptation of one used by McNeilly et al. (1996) and Murry et al. (2001). As in their studies, this measure provided an acceptable internal consistency (Nunnally, 1978) for both husbands ($\alpha = .75$) and wives ($\alpha = .78$). These values for internal consistency were similar to the values reported in other studies (Paradies, 2006). This measure demonstrated good predictive validity in relation to mental health outcomes (Schulz et al., 2006; Kessler et al., 1999). The measures used for self-concept—self-esteem and mastery—were also well-established and well-tested. The measure for self-esteem was developed by Rosenberg (1989), and the measure for mastery was developed by Pearlin et al. (1981). The measures for self-esteem and mastery demonstrated acceptable internal consistency ($\alpha = .75, .74$ for wives and $\alpha = .70, .66$ for husbands) in the present study. These measures have shown good predictive validities in relation to mental health outcomes (Lever et al., 2005; Ross & Mirowsky, 1989). Overall, the composite measure of self-concept again demonstrated a high internal consistency for husbands and wives ($\alpha = .79$ and $\alpha = .83$, respectively). The measure of depressive symptoms (the CES-D scale) was originally developed by Radloff (1977). It has demonstrated good internal consistency; several studies have shown alphas of .90 or better (Brown & Gary, 1988; Noh et al., 1999; Wickrama & Bryant, 2003). The CES-D scale in the present study also

demonstrated good internal consistency for husbands and wives ($\alpha = .75$ and $\alpha = .78$, respectively).

Future Research

Future research may branch in four directions. First, researchers should continue examining the intra-individual etiological process of stressful experiences with racial discrimination using different mental health outcomes, different moderators and different mediators. The present study is limited to depressive symptoms; other aspects of mental health such as anxiety, social phobias, and hostility should be investigated. Regarding moderators, other measures of psychological resources such as psychological hardiness (Kobasa, 1979) may facilitate explaining the intra-individual moderating process as posited by the stress process theory. Ethnic identity, like self-concept, is believed to be negatively associated with depressive symptoms (Noh et al., 1999). While many studies have included ethnic identity as a moderator (Jones, Cross, & DeFour, 2007; Greene, Way, & Pahl, 2006; Yoo & Lee, 2005), fewer studies have included it as a mediator (Verkuyten & Thijs, 2006). Ethnic identity could be a potential mediator that may explain the intra-individual processes related to experiences with racial discrimination.

Second, future research should examine the association between experiences with racial discrimination and marital quality. We now know that husbands' experiences with racial discrimination are associated with their depressive symptoms. One could expand the dyadic model in the present study to determine whether discrimination is linked to marital quality through depressive symptoms. That was beyond the scope of the present study, because for the present study, I was particularly interested in mental health as an

outcome rather than marital quality. This could also be taken further by examining the manner in which experiences with racial discrimination are associated with interactions with other family members—such as the association between discrimination and parent-child relations. How do experiences with discrimination affect the manner in which African Americans parent or socialize their children?

Third, future research should conduct multilevel analyses to identify higher-level factors such as community characteristics that might influence the association between experiences with racial discrimination and depressive symptoms by means of cross-level mediating and cross-level moderating influences. Existing literature suggests several such cross-level mediating and cross-level moderating processes (Wickrama & Braynt, 2003). For example, community characteristics such as community attitudes towards racial minorities may influence African Americans' depressive symptoms through experiences with racial discrimination. Also, community characteristics such as ethnic heterogeneity may moderate the association between experiences with racial discrimination and depressive symptoms. In addition, multilevel analyses could take into account community homogeneity (dependency among residents of the same community) when hypothesized associations between individual level constructs are assessed.

Future work may also involve examining factors that may contribute to stress other than racial discrimination. For example, household crowding has been shown to be significantly associated with health (Booth & Johnson, 1975). Booth and Johnson posit that such an association may exist because it reflects a lack of control over one's surroundings, which may in turn be associated with increased depressive symptoms. However, in the present sample the average household size of this newlywed sample is

approximately two suggesting that overcrowding may not be a significant contributor to self-concept or depressive symptoms. Future research should also examine the length of time spouses have known each other and the number of individuals that have children.

Limitations of the Study

The primary weakness of the present study is that it was cross-sectional in nature. It only focused on the first wave of data. This led to (a) the inability to make long-term inferences, (b) the inability to capture complex variations (e.g., non-linear patterns) in experiences associated with stress symptoms over time, and (c) the inability to examine long-term influences inter-individually and intra-individually.

Second, although the present study does address within group differences (with regard to gender and SES), it does not examine ethnic differences within the Black population. Third, the present study also does not examine psychological resources other than self-concept.

Fourth, the items used to measure experiences with racial discrimination are subjective. That is, the items are self-reports and perceived experiences. Previous literature as well as the present study documents the significant association between an individual's *perceived* experiences with racial discrimination and depressive symptoms. This suggests that an individual's subjective opinion of an experience can be associated with detrimental mental health consequences. However, if an objective measure of *experiences with racial discrimination* were used, it would be possible to evaluate how the association between experiences with racial discrimination and depressive symptoms

differ across perceived and objective measures. That said, we do know (and the study suggest that) perceptions or interpretations of events can indeed affect stress levels.

Contribution to the Literature

Despite these limitations, the present study builds upon the existing literature in several ways. First, the present study provides valuable information regarding the association between experiences with racial discrimination and depressive symptoms. Second, the study provides more generalizable findings than did previous studies. Previous studies primarily used urban/inner-city samples of African Americans, refugee populations, immigrant populations, or other racial/ethnic groups such as Native Americans. In addition, generally those studies lacked a broad range of income and education levels.

Third, the present study focuses on dyadic transactional influences. This study examines the inter-individual associations between experiences with racial discrimination and depressive symptoms. *This is potentially the most important contribution of the present study to the current literature.* No known study to date has investigated such dyadic models in the context of racial discrimination.

Fourth, the present study provides important information regarding the moderating power of self-concept, socioeconomic status, and gender. The study identifies self-concept as an important psychological resource which can protect African Americans from the detrimental influence of racial discrimination. The study also reveals the moderating influences of education and family income on the association between experiences with racial discrimination and depressive symptoms. These findings enhance our understanding of the association between racial discrimination and depressive

symptoms. Fifth, the study reveals important gender differences in the association between experiences with racial discrimination and depressive symptoms.

Several important practical implications for society arise as a result of the findings from this study. First, the present study contributes to our understanding of the role of disparities in African American mental health. For example, the significant association between racial discrimination and depressive symptoms among African American men suggests that discrimination may contribute to mental illnesses and mental disorders. Such conditions (stemming from discrimination) may adversely affect African American participation and performance in educational institutions and work. That, in turn, may influence their social mobility in general. Collectively, the findings help us understand the association between African Americans' experiences with racial discrimination and well-being.

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Appendix A: Items for Experiences with Racial Discrimination

Experiences with Racial Discrimination (10 items, Alpha=.78 for wives and .81 for husbands):

1. During the past year, how often has someone said something derogatory or insulting to you just because you are African American?
2. During the past year, how often has a store owner, sales clerk, or person working at a place of business treated you in a disrespectful manner just because you are African American?
3. During the past year, how often have the police stopped you just because you are African American?
4. During the past year, how often has someone ignored you or excluded you from some activity just because you are African American?
5. During the past year, how often has someone suspected you of doing something wrong just because you are African American?
6. During the past year, how often has someone yelled a racial insult at you?
7. During the past year, how often has someone threatened to harm you physically just because you are African American?
8. During the past year how often have you been treated unfairly just because you are African American?
9. During the past year, how often have you encountered anyone who did not expect you to do well just because you are African American?
10. During the past year, how often has anyone discouraged you from trying to achieve an important goal just because you are African American?

Appendix B: Items for CES-D

The 20 items of the CES-D measure (Alpha=.78 for wives and .75 for husbands):

Depressed Affect (DA) included the following items, which were coded so that high scores reflected a greater depressed affect:

1. I felt depressed. (DA1)
2. I thought my life had been a failure. (DA2)
3. I felt sad. (DA3)
4. I felt that I could not shake off the blues, even with help from my family and my friends. (DA4)
5. I was bothered by things that usually don't bother me. (DA5)
6. I could not "get going." (DA6)

Positive Affect (PA) included the following items, which were coded so that high scores reflected lower positive affect:

7. I felt hopeful about the future. (PA1)
8. I was happy. (PA2)
9. I enjoyed life. (PA3)
10. I felt that I was just as good as other people. (PA4)

Somatic Activity (SA) included the following items, which were coded so that high scores reflected greater somatic activity:

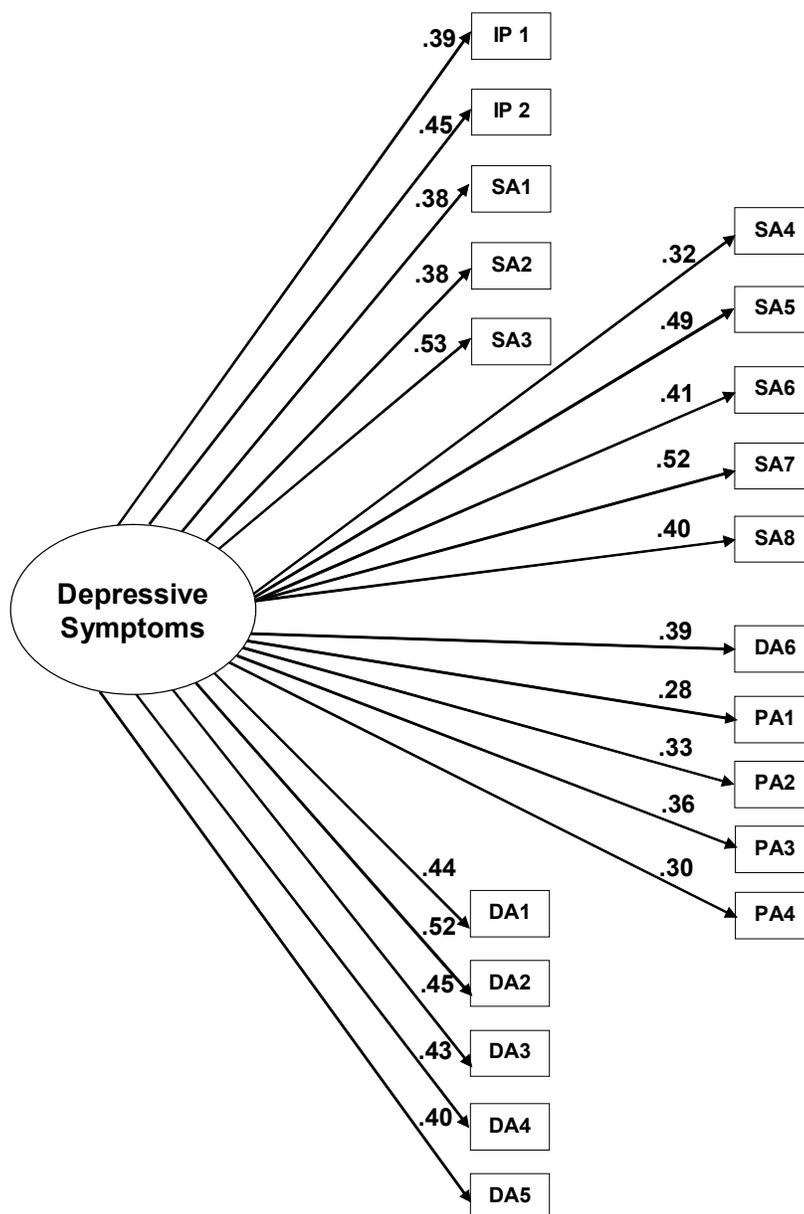
11. My appetite was poor and I did not feel like eating. (SA1)
12. I had trouble keeping my mind on what I was doing. (SA2)
13. I felt afraid. (SA3)
14. I felt everything I did was an effort. (SA4)
15. I felt lonely. (SA5)
16. I felt like not talking. (SA6)
17. I had crying spells. (SA7)
18. I had trouble sleeping. (SA8)

Interpersonal Problems (IP) included the following items, which were coded so that high scores reflected greater interpersonal problems:

19. I felt people were unfriendly to me. (IP1)
20. I felt that people disliked me. (IP2)

Appendix C: Confirmatory Factor Analysis of Depressive Symptoms

Model A. Depressive Symptoms One Factor Model for Husbands



N=305

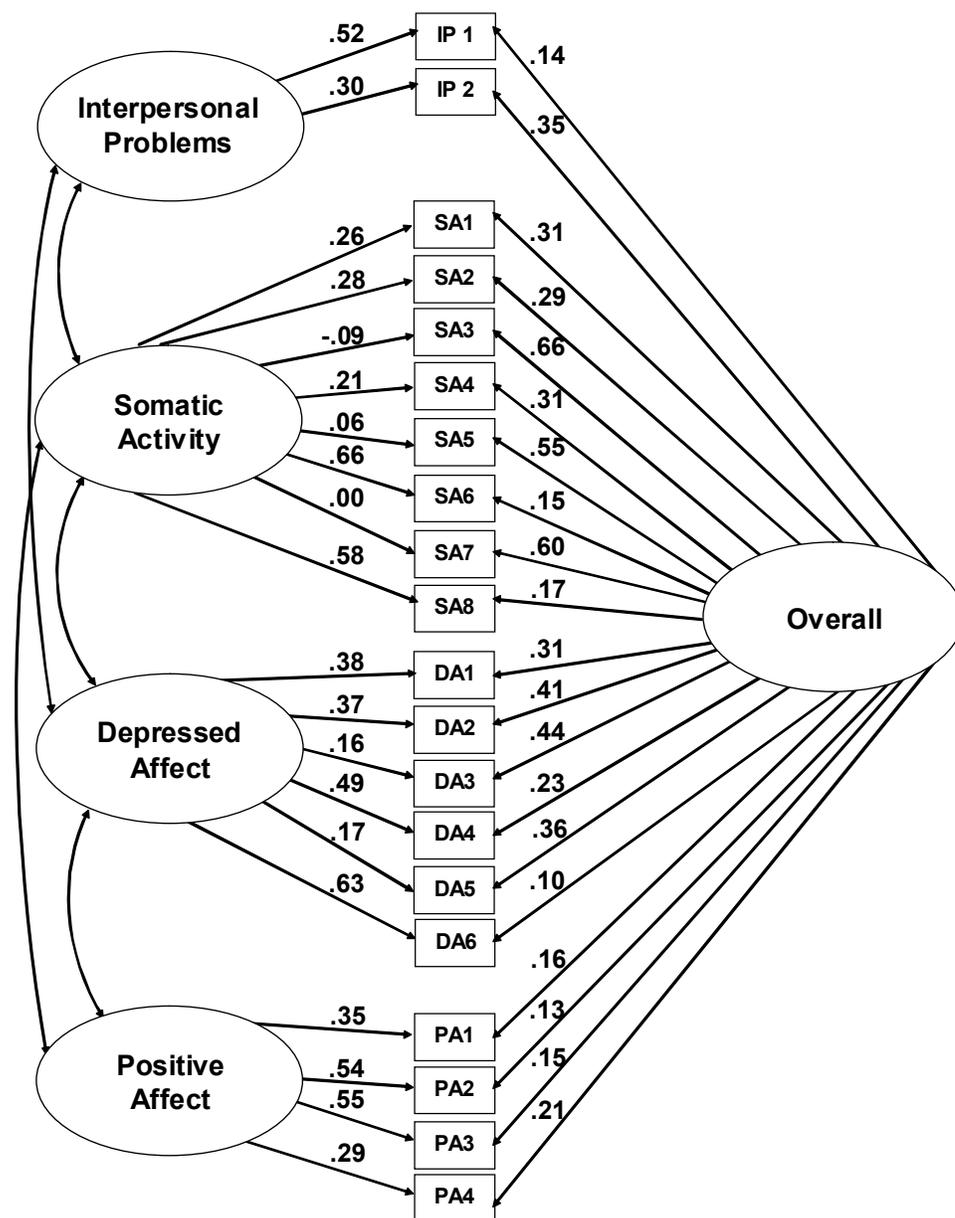
Chi-Square=487, df=162, Chi-Square/df=3.00

RMSEA=.08

IP=Interpersonal Problems, SA=Somatic Activity

DA=Depressed Affect, PA=Positive Affect

Model B. Depressive Symptoms Four Factor & Overall Model for Husbands



N=305

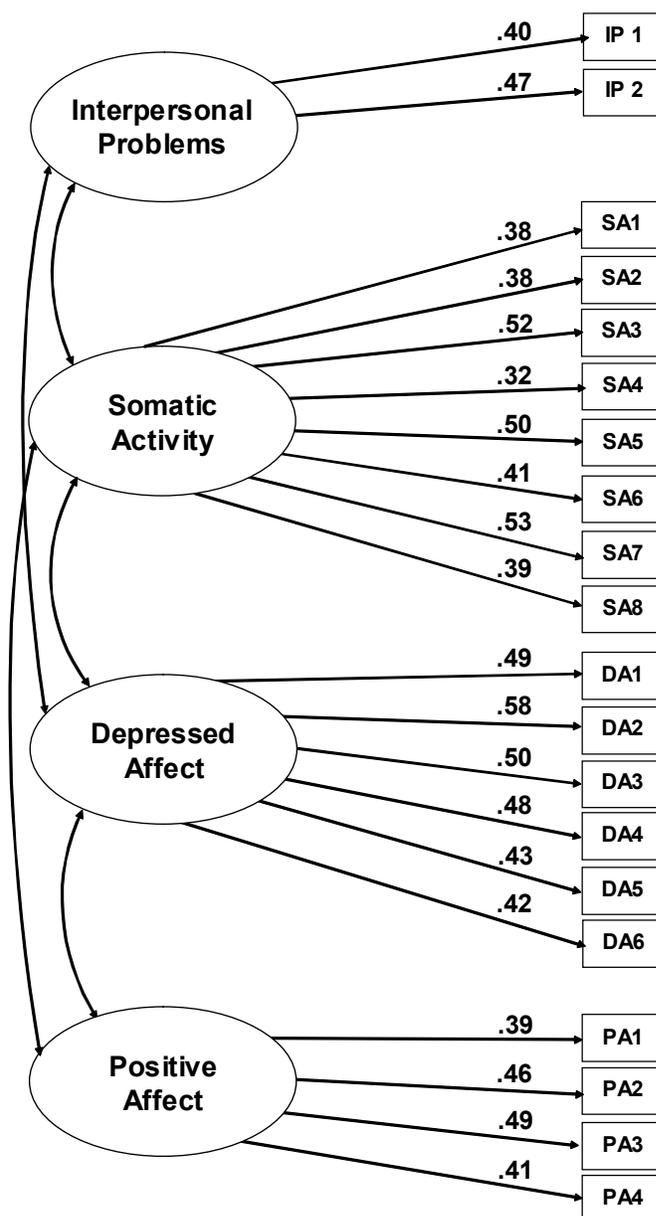
Chi-Square=321, df=154, Chi-Square/df=2.08

RMSEA=.06

IP=Interpersonal Problems, SA=Somatic Activity

DA=Depressed Affect, PA=Positive Affect

Model C. Depressive Symptoms Four Factor Model for Husbands



N=305

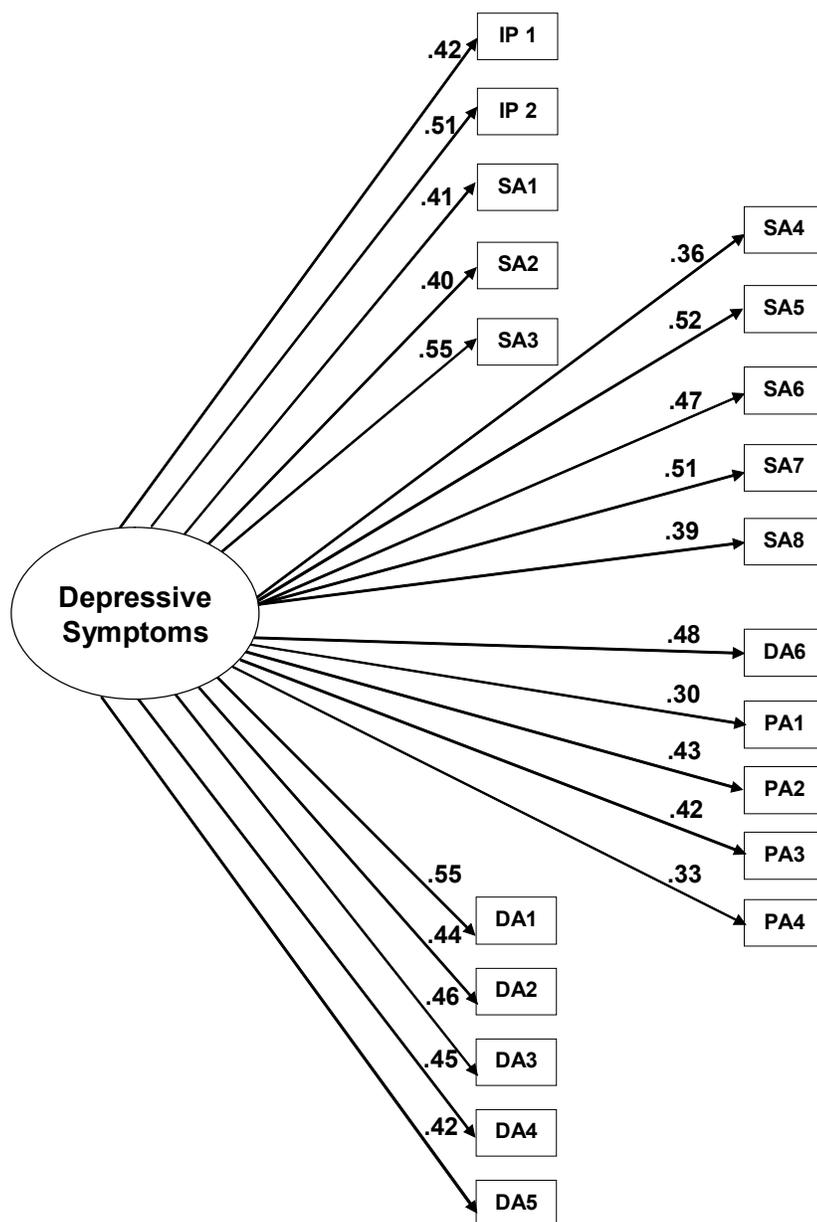
Chi-Square=485, df=175, Chi-Square/df=2.77

RMSEA=.07

IP=Interpersonal Problems, SA=Somatic Activity

DA=Depressed Affect, PA=Positive Affect

Model D. Depressive Symptoms One Factor Model for Wives



N=305

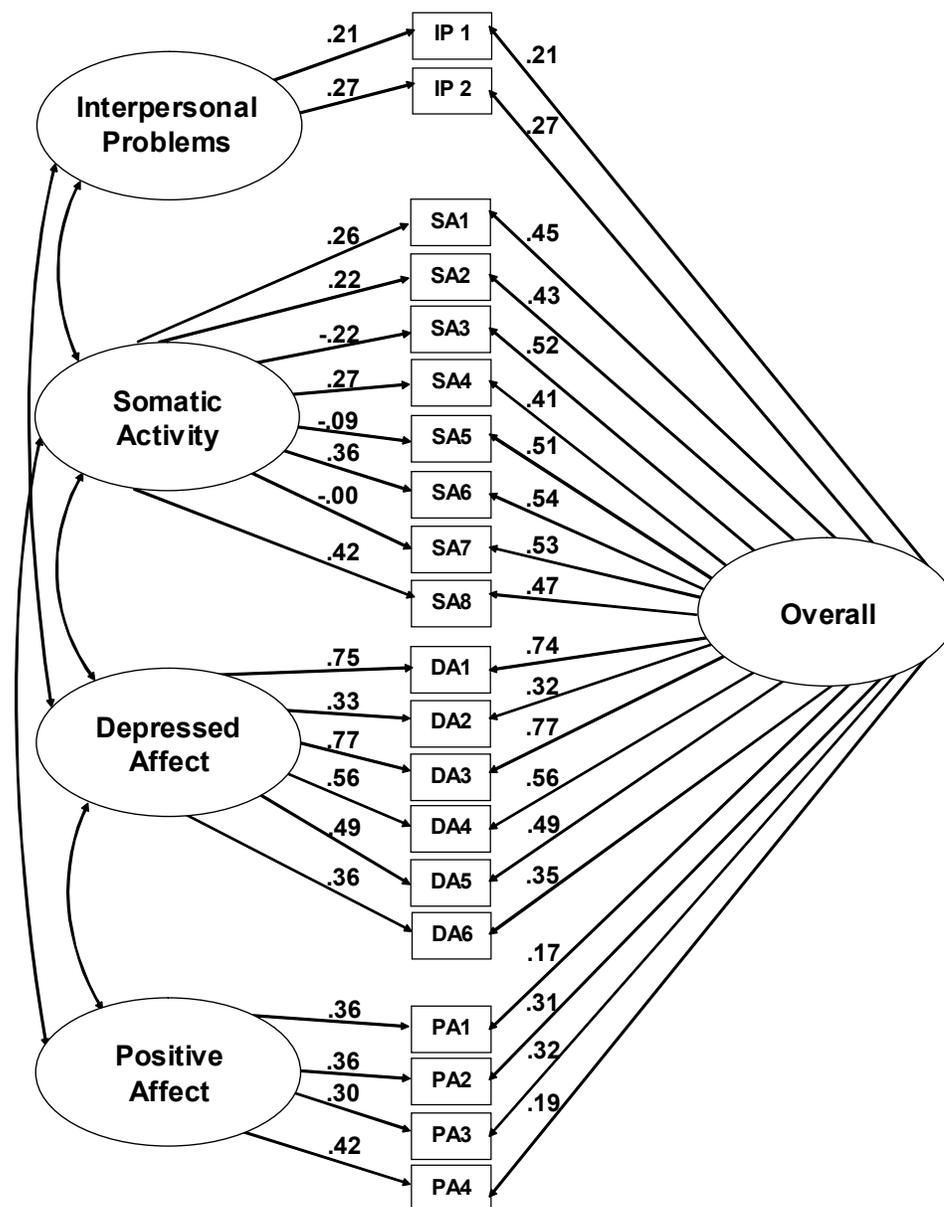
Chi-Square=541, df=165, Chi-Square/df=3.27

RMSEA=.08

IP=Interpersonal Problems, SA=Somatic Activity

DA=Depressed Affect, PA=Positive Affect

Model E. Depressive Symptoms Four Factor & Overall Model for Wives



N=305

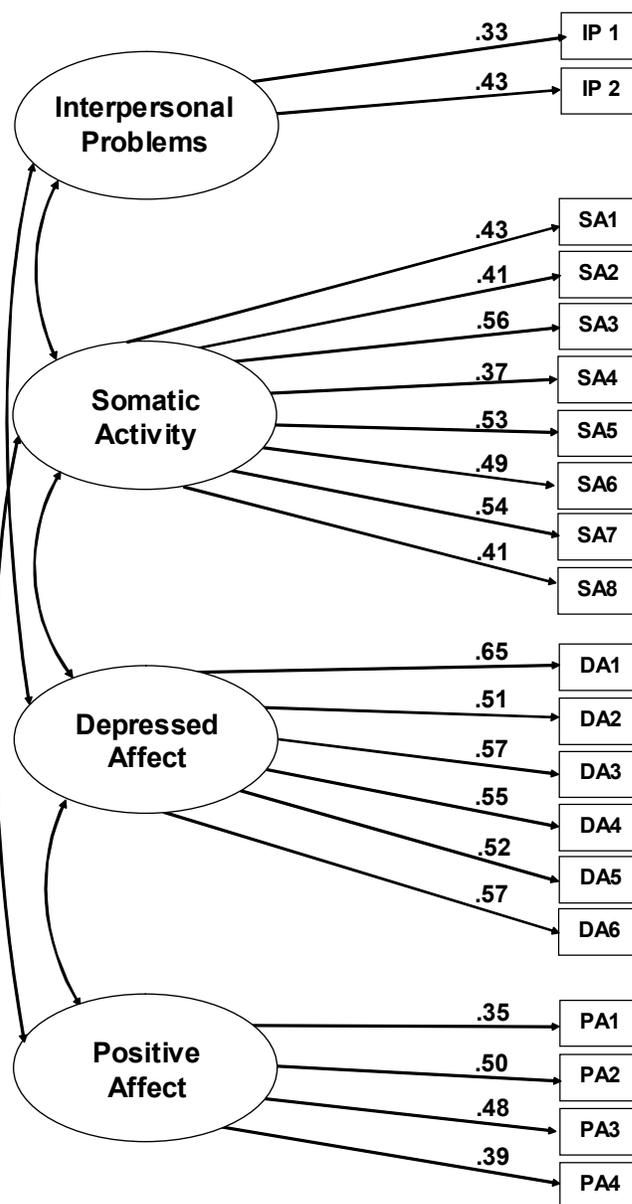
Chi-Square=315, df=158, Chi-Square/df=1.99

RMSEA= .05

IP=Interpersonal Problems, SA=Somatic Activity

DA=Depressed Affect, PA=Positive Affect

Model F. Depressive Symptoms Four Factor Model for Wives



N=305

Chi-Square=457, df=173, Chi-Square/df=2.64

RMSEA=.07

IP=Interpersonal Problems, SA=Somatic Activity

DA=Depressed Affect, PA=Positive Affect

Appendix D: Items for Self-Esteem & Mastery

Items for Self-Esteem (Alpha=.75 for wives and .70 for husbands):

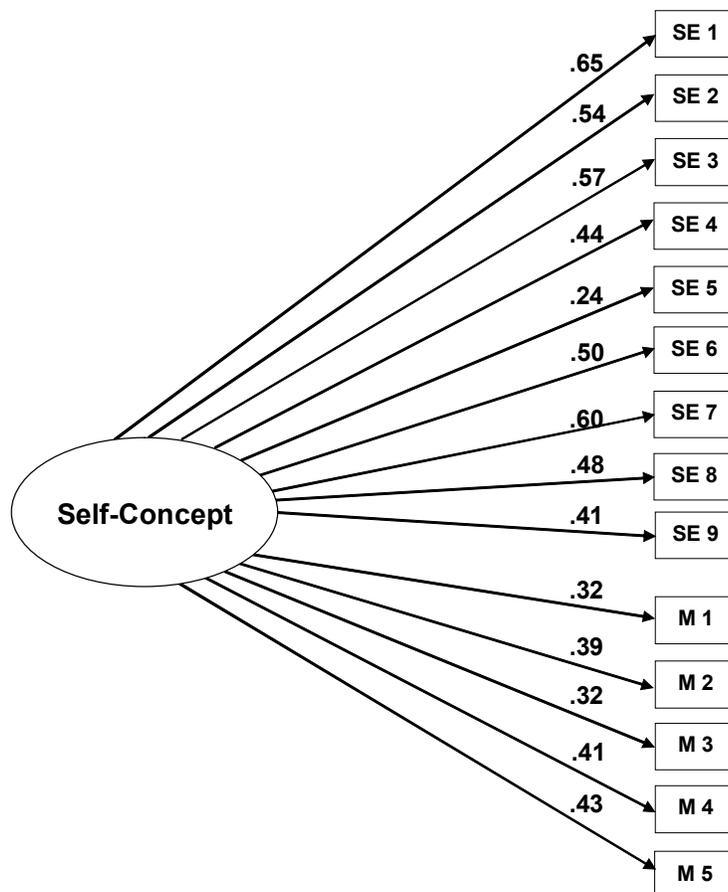
1. I feel that I have a number of good qualities. (SE1)
2. All in all, I am inclined to feel that I am a failure. (SE2)
3. I am able to do things as well as most other people. (SE3)
4. On the whole, I am satisfied with myself. (SE4)
5. I wish I could have more respect for myself. (SE5)
6. At times I think I am no good at all. (SE6)
7. I have much to be proud of. (SE7)
8. Sometimes I feel completely worthless. (SE8)
9. I am usually very optimistic. (SE9)

Items for Mastery (Alpha=.74 for wives and .66 for husbands):

1. There is really no way I can solve some of the problems I have in life. (M1)
2. Sometimes I feel that I'm being pushed around in life. (M2)
3. I have little control over the bad things that happen to me. (M3)
4. I often feel helpless in dealing with the problems of life. (M4)
5. I can do just about anything I really set my mind to. (M5)

Appendix E: Confirmatory Factor Analysis of Self-Concept

Model A. Self Concept One Factor Model for Husbands



N=305

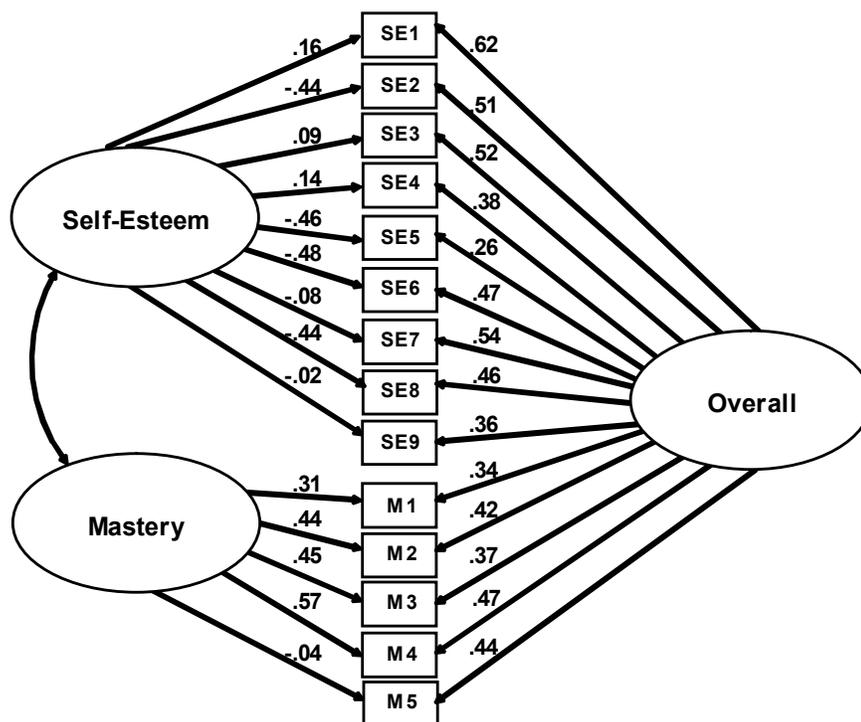
Chi-Square=326, df=81, Chi-Square/df=4.02

RMSEA=.10

SE=Self-Esteem

M=Mastery

Model B. Self-Concept Two Factor & Overall Model for Husbands



N=305

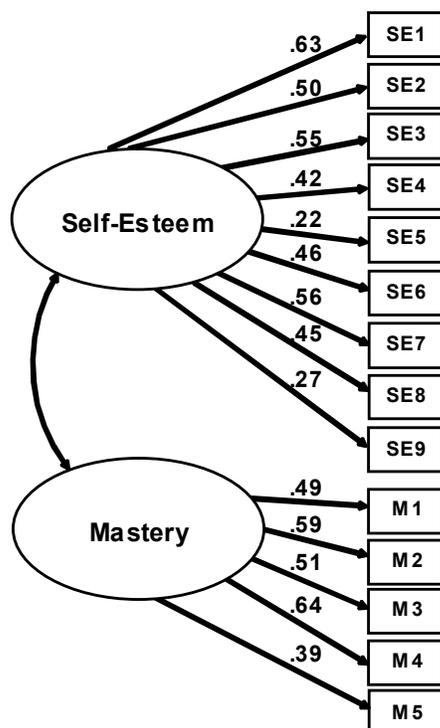
Chi-Square=109, df=72, Chi-Square/df=1.51

RMSEA= .04

SE=Self-Esteem

M=Mastery

Model C. Self-Concept Two Factor Model for Husbands



N=305

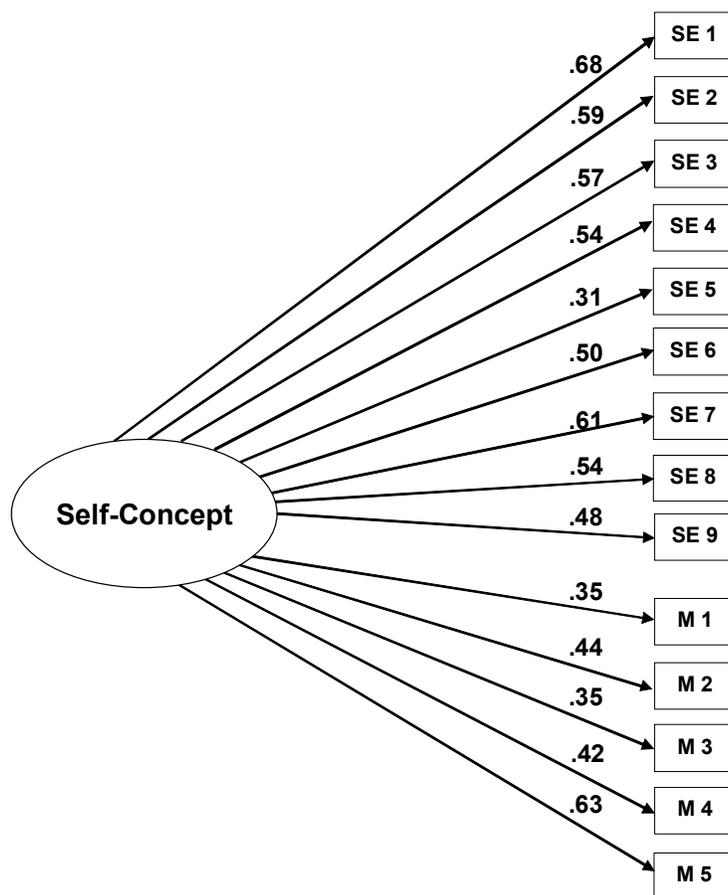
Chi-Square=229, df=81, Chi-Square/df=2.82

RMSEA= .07

SE=Self-Esteem

M=Mastery

Model D. Self Concept One Factor Model for Wives



N=305

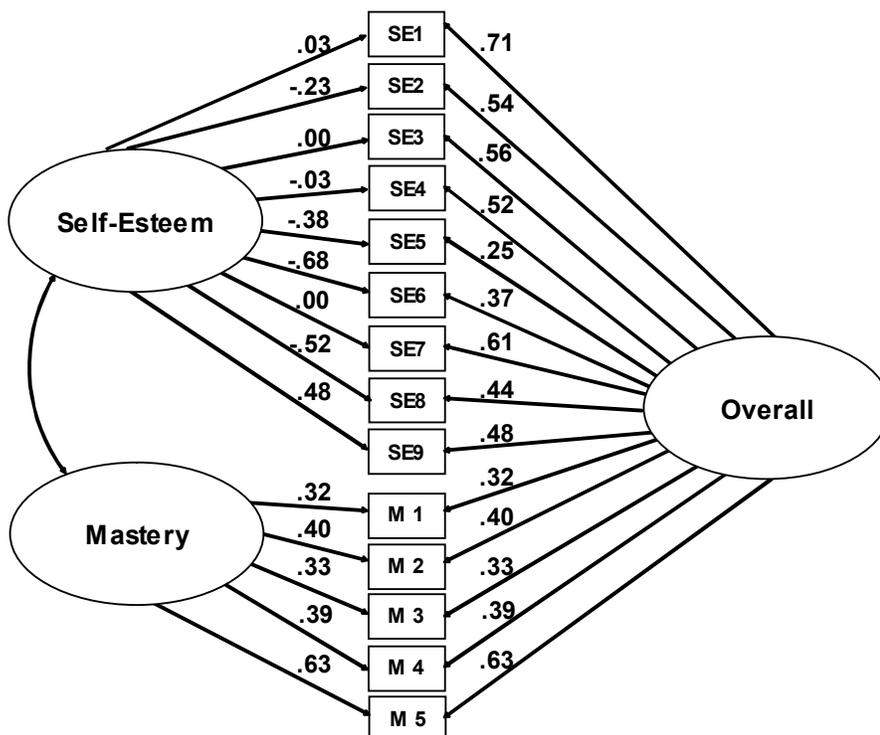
Chi-Square=382, df=74, Chi-Square/df=5.16

RMSEA=.10

SE=Self-Esteem

M=Mastery

Model E. Self-Concept Two Factor & Overall Model for Wives



N=305

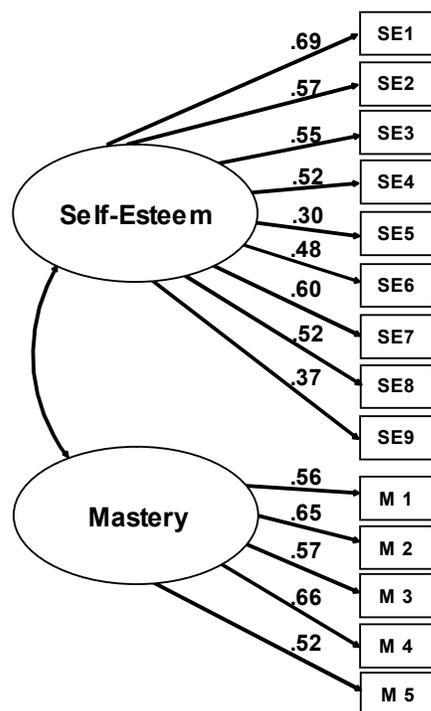
Chi-Square=136, df=72, Chi-Square/df=1.88

RMSEA= .05

SE=Self-Esteem

M=Mastery

Model F. Self-Concept two Factor Model for Wives



N=305

Chi-Square=313, df=81, Chi-Square/df=3.86

RMSEA= .09

SE=Self-Esteem

M=Mastery

Appendix F: Education Level**Educational Level.**

1 = Grade school

2 = Some high school

3 = High school

4 = Technical degree or trade school degree

5 = Some college

6 = Associate degree

7 = Bachelor's degree

8 = Master's degree

9 = Doctorate/Ph.D.

10 = Medical Doctor/M.D

Appendix G. Zero-order Correlations Among Study Variables for Husbands (n=305) and Wives (n=305)

	Wives								
	1	2	3	4	5	6	7	8	9
Husbands									
1 Discrim. Experiences	—	.03	-.04	.09+	.03	.02	.09+	.11*	.12*
2 Depressed Affect	.14*	—	.26**	.63**	.26**	-.30**	-.22**	-.09+	.04
3 Positive Affect	.08+	.39**	—	.20**	.20**	-.16**	-.14*	-.10+	-.00
4 Somatic Activity	.15**	.56**	.19**	—	.24**	-.09+	-.01	-.06	-.03
5 Interpersonal Problems	.09+	.44**	.30**	.39**	—	-.08+	-.09+	-.10+	-.01
6 Mastery	.02	-.25**	-.20**	-.09+	-.14+	—	.58**	.20**	.11*
7 Self-Esteem	.14+	-.17**	-.25**	-.05	-.17**	.56**	—	.28**	.25**
8 Education	.09+	-.07	-.13*	-.05	-.16**	.07	.22**	—	.41**
9 Family Income	.14*	-.12*	-.12*	-.14*	-.13*	.09*	.17**	.30**	—
Husbands Mean	1.41	1.24	1.51	1.35	1.27	4.03	4.29	4.16	12.44
Husbands SD	.49	.33	.56	.33	.44	.61	.43	1.59	4.9
Wives Mean	1.44	1.22	1.48	1.37	1.20	4.09	4.37	4.79	12.44
Wives SD	.44	.39	.53	.41	.38	.65	.43	.06	4.9

Note. +p<.10, * p<.05, ** p<.01. Correlations for husbands below the diagonal; correlations for wives above the diagonal.

Appendix H. Zero-Order Correlations Among Study Variables Between Husbands (n=305) and Wives (n=305)

Wives	Husbands								
	1	2	3	4	5	6	7	8	9
1 Experiences with Racial Discrimination	-0.00	-.04	-.08	-.03	-.05	-.00	-.00	-.06	.12*
2 Depressed affect	-.06	-.03	-.01	-.01	-.03	.06	.03	-.03	-.04
3 Positive affect	.07	.02	.15**	.07	.01	.09+	.01	-.11*	-.00
4 Somatic activity	-.05	.08	.10+	.14*	.06	.02	.01	-.09+	-.03
5 Interpersonal problems	-.09+	.06	.17**	.04	.04	-.03	-.12*	-.14**	-.01
6 Mastery	-.00	-.00	.12*	.04	.02	.08	.05	-.02	.11*
7 Self-Esteem	.05	.04	.13**	.15**	.08	.03	.06	.00	.25**
8 Education	.12*	-.03	-.04	-.04	-.02	.05	.13*	.25*	.41**
9 Family Income	.14**	-.12*	-.12*	-.14**	-.13*	.09+	.17**	.30**	—

Note. +p<.10, * p<.05, ** p<.01

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Peer Reviewed Journal Publications:

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- **Wickrama, T.**, Wickrama, K. A. S., and Romas, J. A. (2005). The Relationship of Individual, Family, and Community Characteristics with Physical Health: An Adult Study in 27 Rural Minnesota Counties. *Journal of Rural Health*, 21, (4), 378-382.
- **Wickrama, T.**, Nandy, B. K., and Wickrama, K. A. S. (2003). *The Influence of Women's Status, Economic Development, and Dependency on Infant Mortality in Developing Countries: Ceiling and Moderating Effects of the Level of Economic Development*. *The International Journal of Contemporary Sociology*, 40(2), 239-254.

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