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The Complex Relationship between Race, Gender, and Smoking Behavior

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A dissertation submitted to the Faculty of the
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ABSTRACT
The Complex Relationship between Race, Gender, and Smoking Behavior
Kevin Mortimer Greene

Smoking contributes to the three leading causes of death for blacks in the United States: heart disease, cancer, and stroke. Researchers show that sociodemographic variables are associated with the initiation and continuation of cigarette smoking. In this dissertation I argue that factors that may induce or inhibit stress for blacks-perceived discrimination, social support, and locus of control- may differentially affect their smoking behavior. Thus, I examine how each of these factors affects stress and smoking behavior. In addition, I investigate whether gender influences how black men and women perceive these factors and how distress may mediate the relationship between these factors and smoking. Predictions stem from theoretical perspectives as well as previous empirical research. To examine these factors, I use data from the National Survey of American Life (NSAL). This dataset includes a nationally representative sample of black adults aged 18 who reside in urban and rural areas throughout the United States. I test models of the effects of stress-inducing factors, along with controls, on depression and smoking behavior (likelihood of smoking and amount of smoking). Results show that depression does not mediate between stress-inducing factors and smoking behavior. Perceived discrimination has a positive effect on depression for black men and women, and is positively related to the likelihood of smoking for men and negatively related for women. Other factors also affected depression levels. For women, social support from family reduced depression whereas for men, social support from friends lowered depression levels. Yet the extent to which women provided support to their families increased both the likelihood and amount of their smoking. Feelings of helplessness and hopelessness were positively related to depression for both black men and women. Hopelessness also directly affected the amount that black men smoked. For black women, depression did increase the amount of smoking. I also found interactions between helplessness, hopelessness, and social support for black men and women smokers. Future research should examine how gender interacts with perceived discrimination to understand its differential effects of these factors, as well as how gender patterns for social support and locus of control relate to coping strategies.

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"I can do all things through Christ which strengtheneth me" Philippians 4:13

All the Praise, Glory, and Honor to my Lord and Savior, Jesus Christ. Only through His Almighty Grace and Power was I able to achieve this great accomplishment and meet His holy standard. Thank you for being by my side now and forever.

To my parents, Mortimer and Monica, I'd like to thank you for your continuous love, support and wisdom and I will cherish you always. Through your inspiring words, motivation, and assistance, I have been able to successfully travel the winding roads of life and endure. I love you.

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CHAPTER 1: Introduction

For those who grew up in the twentieth century, many have daydreamed and speculated about life in the new millennium. Science fiction films and literature presented a limitless future punctuated with incomprehensible spectacles such as flying cars, space travel, and unseen human development. Although many of our far-fetched dreams have not materialized, many have. Humankind has witnessed inconceivable leaps in technology, communication, and scientific advancement in agriculture, travel, and a host of other arenas. In the realm of health, people have benefited from cures to many diseases, prolonged lifespan, and improved quality of life. Unfortunately, the proliferation of these advancements has not been equally distributed throughout society. As a result of social forces, some groups and populations still wrestle with disadvantage. One area where this is painfully obvious is the health status of Americans. Despite the United States' position as a global superpower, many of its citizens suffer from declining health, often stemming from conditions that are modifiable. Furthermore, some sub-populations are more prone to health problems, on average, than others.

One area of particular concern that contributes to poor health is cigarette smoking. Despite the fact that cigarette smoking is a modifiable behavior, it has resulted in numerous deaths and shortened the lives of many. Also, although cigarette smoking has diminished for all sociodemographic subpopulations of adults over the past 40 years, its decline within the last decade is smaller for black (in my dissertation, the term 'black' refers to African Americans) men relative to other groups (Centers for Disease Control MMWR 2008:1221). Each year more black Americans die from diseases caused by smoking than from murder, AIDS, drug and alcohol abuse, and car crashes (Hoyert,

Arias, Smith, Murphy, and Kochanek 2001). The results of these and other severe health outcomes such as cancer, diabetes, and cardiovascular disease situate blacks, particularly males, with a lower life expectancy when compared to whites. According to the Centers for Disease Control's National Center for Health Statistics, the most recent trends of life expectancy at birth by race and sex in 2009 for black females is 77.4 years, and, significantly lower, 70.9 years, for black males. As a reference, life expectancy for white females is 80.9 years and 76.2 years for white men (National Vital Statistics Report 2011). Of the three leading causes of death for all ages - heart disease, cancer, and stroke- smoking and other tobacco use are major contributors to all of them (National Center for Health Statistics 2009).

Important to this dissertation, there is a higher prevalence of cigarette smoking among black adult males (24.8%) than black females (15.8%) in comparison to white males (23.2%) and white females (19.8%) in the United States (Centers for Disease Control 2008). Why is there such a large discrepancy in smoking behavior between black men and women? It may be, in part, the unique combination of stress factors in the lives of black men. For example, black men face high rates of unemployment, coupled with the social expectations that men be the "successful providers" of the household. In addition, research shows that black men may be significantly less likely to use "seeking social support coping behaviors" than African American women to cope with stress (Utsey, Ponterotto, Reynolds, and Cancelli 2000:79). In my dissertation, I examine the effects of several social factors that may affect the smoking behavior of black men and women differently.

One underlying mechanism that may connect social factors to health outcomes for both black men and women is stress. When thinking of stress, in general, I conceptualize it as a mediator between external or environmental stimuli and subsequent psychological and/or behavioral response, similar to scholars' research, such as Wheaton (1994; 1999) and Clark, Anderson, Clark, and Williams (1999). Stimuli and stressors in the environment increase the stress levels of individuals. In order to mitigate this discomfort, individuals adopt some mechanism of coping, such as smoking. Romano, Bloom, and Syme's (1991) foundational work investigated the high prevalence of smoking among blacks in urban settings to determine what factors increased the health burden within this population, identifying stress as a predictive factor to smoking prevalence. They operationalized stress using Lazarus and Folkman's (1984) definition of 'daily hassles' as the "irritating, frustrating, distressing demands that to some degree characterize everyday transactions with the environment" (1415). They found that black men and women in urban environments that experienced more daily hassles were more likely to smoke.

In this dissertation I examine several factors that may induce or inhibit stress- - perceived discrimination, social support, and locus of control. These factors may, in turn, differentially affect smoking behavior among black men and women. Specifically, I will attempt to answer three questions: (1) Do black men and women perceive racism different or similarly and how do these perceptions affect distress and smoking behavior?; (2) How does their perceived social support affect distress and smoking behavior?; and (3) How do black men and women's views of their locus of control affect distress and smoking behavior? I also examine whether there is a gender difference in how black men and women perceive these factors, how these factors may affect distress,

which, in turn, may affect smoking behavior. When considering the black community, I believe that these three factors provide a theoretical springboard to begin my investigation of the relationship between psychological distress and smoking behavior among black men and women.

I argue that perceived discrimination is a key factor that leads to psychological distress and in turn smoking behavior for blacks. My theoretical reasoning follows that differential treatment based on race, should uniquely cause stress for black men and women. As a result of discrimination, many life opportunities are truncated in the form of less comparable educational resources, less desirable residential locations, economically-depressed employment prospects, as well as less access to efficacious health services, providers, and benefits, negatively affecting health outcomes, both mentally and physically. Stress is further compounded for black men and women to successfully negotiate certain race- and gender-based social expectations and the attendant social constraints that may arise to counteract those attempts. In this way, I expect that perceived discrimination is a highly salient factor for both black men and women, and has a strong positive relationship with psychological distress and, in turn, affects smoking behavior.

Also, I argue that social support resources, in the form of help from friends and family, either financially, socially, spiritually or morally, would be expected strategies to alleviate feelings of stress. In addition, however, women are more likely to create and utilize social networks more adaptively through family, friends, and church than men, who may act in more aggressive and maladaptive ways in an alternative attempt to "do for self." Finally, I argue that locus of control, defined as "the extent that individuals

believe that events in their lives are under their own control (an internal orientation) or are determined by forces outside themselves, such as luck, fate, or chance (an external orientation" may also affect stress levels and smoking behavior, and this relationship may differ between black men and women (Krause and Stryker 1984:783). I highlight these arguments in chapters 2 and 3, where I draw from theoretical frameworks provided by Williams (1997), Wheaton (1999), and Harrell (2000), as well as Thoits (1995; 2010) a key scholar in the field of social support and health.

To examine these factors on smoking behavior, I use data from the National Study of American Life: Coping with Stress in the 21st Century (NSAL). This dataset includes an area nationally representative sample of black adults aged 18 that reside in urban and rural areas throughout the United States. The National Survey of American Life (NSAL) is a four-stage national area probability sample survey that includes data that assess race/ethnicity classifications, household income, labor status, and education, religion issues, social support, neighborhood and environment dynamics, and various experiences with discrimination. There are also constructed demographic variables that provide thorough background information on survey participants as well as geographic/regional identifiers that may be useful in identifying patterns across regions. It also asks respondents about type of community in which they lived while growing up, such as urban and rural areas. In addition, participants were asked a series of questions on perceptions of health behaviors, including smoking behavior.

Overview of Smoking Patterns in the U.S.

Smoking is considered the number one risk factor associated with cardiovascular disease (CVD). The negative effects of smoking, however, can be reversed one year after

quitting smoking--for example, the risk of CVD decreases by 50 percent after one year of being smoke free. Within 15 years of quitting, the relative risk of dying from CVD for an ex-smoker approaches that of a long time non-smoker (American Heart Association 2000).

In 2007, the Centers for Disease Control (CDC) analyzed data from the National Health Interview Survey (NHIS) Sample Adult Core Questionnaire administered to adults (aged greater than or equal 18 years) living in the U.S. The goal of this analysis was to assess the extent of cigarette use in the United States in order to meet national health objectives for Healthy People 2010, a national Public Health initiative to decrease the prevalence of cigarette smoking and other pertinent health indicators that affect Americans and improve the health of the national overall. According to the survey, an estimated 43.4 million adults (19.8%) are reported as current smokers, where smoking prevalence is higher for men (22.3%) than for women (17.4%). Prevalence rates are highest among persons aged 18-24 years (22.2%) and aged 25-44 years (22.8%) and lowest among persons aged 65 or older (8.3%). Among racial and ethnic groups, American Indians/Alaska Natives represent the highest prevalence rates of 36.4%, followed by non-Hispanic whites (21.4%) and non-Hispanic blacks (19.8%). The lowest prevalence rates were found among Hispanics (13.3%) and Asians/Pacific Islanders (13.7). Importantly, black men (24.8%) have a higher percentage of smokers than white men (23.1%), black women (15.8%) and white women (19.8%).

In regard to education, adults with an undergraduate (11.4%) and graduate (6.2%) degree represent the lowest smoking prevalence, whereas the highest prevalence are individuals with 9-11 years of education (33.3%) or a General Education Development

(GED) diploma (44.0%). Poverty levels reflect a significantly higher percentage of current smokers living under the federal poverty threshold (28.8%) in comparison to those living above it (20.3%) (Morbidity and Mortality Weekly Report 2008:1221-1226).

Over the last forty years, cigarette smoking has decreased across all sociodemographic markers and throughout all adult subpopulations (Centers for Disease Control 2008). Cigarette prevalence among adults has declined significantly in 2007 (19.8%) in comparison to rates in 2006 (20.8%) and 1998 (24.1%); however, decreases are comparatively smaller in the last decade than previous ones (Morbidity and Mortality Weekly Report 2008: 1221-1226). Observable and significant declines are evident in the black subpopulation (19.8% in 2007 vs. 23.0% in 2006) and for the age group of 65 and older (8.3% in 2007 vs. 10.2% in 2006) (Morbidity and Mortality Weekly Report 2008:1221-1226). Smoking is still considered, however, a major contributor to patterns of mortality in the United Sates (Escbedo & Peddicord 1996).

A quick perusal of the data provides a snapshot of the smoking rates among U.S. adults and illustrates differential prevalence rates along social demographic lines such as age, education, income, race and ethnicity, but the factors that influence these patterns are more obscure and difficult to decipher and separate. I discuss several key factors that affect smoking in adults living in the U.S. and examine how well they explain smoking behavior within racial and across gender lines.

According to the United States Census Bureau (2010), African Americans whom identified as black singularly or a combination with another race, comprised 13.6 percent of the U.S. population at approximately 42 million people. For individuals that specified

their race as solely African American, the U.S. composition of blacks equaled 12.6 percent, or approximately 39 million (United States Census Brief 2010).

Importantly, black men are 50% more likely to get lung cancer than white men and each year more black Americans die from diseases caused by smoking than from murder, AIDS, drug and alcohol abuse and car crashes (Hoyert et al. 2001). The decline in smoking behavior of black men has been slower than for black women, as well as other racial populations. Black males are at a higher risk than women and other ethnic counterparts in all categories of exhibiting unhealthy behaviors, earlier onset of disease, and more severe complications as a result.

Dissertation Focus

As previously mentioned, how might we begin to explain the discrepancy in the rates of smoking behavior between black men and women? To address this question, I assess how perceived discrimination, social support, and locus of control affect psychological distress and, in turn, smoking behavior of black men and women together in one model, controlling for other important factors that affect stress and smoking behavior. Specifically, I evaluate how psychological distress, as measured by depression, may mediate the effects of these factors on smoking to begin to disentangle the complex interplay of social factors, individual interpretive processes, and their relationship to negative health behaviors as they contribute to health disparities. To my knowledge, this is the first test of this model for black men and women. Second, I draw upon several key theoretical perspectives and models to derive predictions about how these three factors may affect distress and smoking behavior of black men and women.

In Chapter 2, I will provide an overview on race, gender, and health that will detail the various theoretical understandings of these concepts. In Chapter 3, I will review the overall concept of stress and further detail the stress process model, followed by a discussion of the factors that affect stress and specific race-stress processes. I will also review coping as a response to stress, outline various coping processes, and present my predictions and the literature used to inform and justify them. Chapter 4 presents the research design, methodology and plan of analysis. In Chapter 5, I will review the results of my analyses, and discuss whether my analyses either did or did not support my theoretical predictions. Finally, in Chapter 6, I will discuss my findings, limitations, and potential implications for future research.

CHAPTER 2: BACKGROUND of RACE, GENDER, and HEALTH

In this chapter I will review how race is conceptualized as a social and biological construct and operationalized for empirical study. I will then provide several theoretical frameworks that appropriately identify the primary factors useful in any study of race and provide a clear conceptual foundation to facilitate the understanding of the often nuanced and intangible nature of the subject. Next I will provide an overview of gender and health and discuss the general differential health outcomes for women. Finally, I will review how race, gender, and health interact and discuss the health differences between black men and women.

Overview of Race and Health

Understanding race and its linkages to health is a complex and precarious objective. Multiple disciplines and research paradigms have attempted to define race based on widely differing perspectives and motivations. Two things are important in any

attempt to understand and address the role of race within health. First, researchers should have a consensual understanding of what race actually is in terms of definition and empirical application. Second, the concept of race should be disentangled in order to account for the specific variables, risk factors, and resources that may contribute to variable health outcomes between race-based populations (Williams 1997). Drawing primarily from Williams' (1997; Williams and Sternthal 2010) research agenda for the study of race and health, I will outline the main arguments in the debate about how to define race. I will also review the reasons why race is important, not only as an organizing principle, but also as a potential predictor of variation in health outcomes among different racial groups. Following this, I will explicate Williams' framework to study the role of race in health.

Race as a Social Construct

In early health research, two competing views of race characterized the debate in defining 'race'. Anthropologists, psychologists, and sociologists used a socio-political-cultural explanation to define race, while the biomedical sciences viewed race as a biological/genetic construct. Over time, the view of race as a social construct has gained ascendancy as the primary view of race, but not without vigorous contention. The social sciences' view of race as a socio-political construct with strong cultural and ethnic components is based on several considerations as outlined by Williams (1997). First, the idea of race arose before the development of scientific theories and genetic conceptualization and testing (Williams 1997; Williams and Mohammed 2009; Williams and Sternthal 2010). In fact, race had more of a functional purpose for the processes of exploitation and colonialism. The classification of populations was used to separate the

oppressors from the oppressed for the accumulation of resources. Therefore, cultural and political motivations drove the development of the race concept to serve an ideological function in society. In this way social, economic, and political factors influenced the development and dissemination of scientific knowledge, as opposed to objective and scientifically rigorous inquiry. Modern science, however, has shown that "the phenotypic characteristics used to define race are not strongly related to genotypic variation" (Williams 1997:323). There is no strong correlation between skin and hair color, or other external physical characteristics to genetic or biochemical characteristics. Furthermore, genetic research shows there is more variation within races than between.

Second, genes that produce physical characteristics such as skin color are not systematically linked to variations in health status (Williams 1997). According to the American Association of Physical Anthropology (1996), "Pure races in the sense of genetically homogenous populations do not exist in the human species today, nor is there any evidence that they have ever existed" (p. 569). The interaction of inherited traits, natural, and social environment all play a part in the ongoing evolution of human populations, and is by definition shifting, integrating, and expanding to create genetic expressions that overlap and resist static categorization.

Race as a Biological Construct

Despite the evidence that points toward the social construction of race, there is an implicit acceptance of biological distinctiveness as justification for human population typology. Williams (1997) performed a review of dictionaries in the biomedical sciences and public health fields that provide standardized definitions of key concepts used in the field. Highlighting the definitional adherence to a genetic homogeneity perspective of

race in the biomedical sciences, Williams (1997) noted the 1988 definition of race in the "Dictionary of Epidemiology" that states, "Persons who are relatively homogenous with respect to biological inheritance" (p. 324). This discredited view of race was updated in the 1995 version of the "Dictionary of Epidemiology" to state "In a time of political correctness, classifying by race is done cautiously, although some organizations, e.g., the American Public Health Association, ask members to record their racial group on membership forms. Epidemiologic studies have, of course, helped to identify racial correlates of certain conditions and to dissect race from socioeconomic and environmental conditions as determinants of disease" (Williams 1997:324). An important point Williams raises is that the motivation to revise this epidemiologic definition of race is attributed to 'political correctness' rather than scientific verification.

In the field of genetics, the definition of race is acknowledged as arbitrary: "A phenotypically and/or geographically distinctive subspecific group, composed of individuals inhabiting a defined geographic area and/or ecological region, and possessing characteristic phenotypic and gene frequencies that distinguish it from other such groups. The number of racial groups that one wishes to recognize within a species is usually arbitrary but suitable for the purposes under investigation" (Williams 1997:324). The final definition that Williams compiles comes from Mosby's Medical, Nursing, and Allied Health Dictionary and rejects the biological-centric view of race to incorporate the new paradigm that acknowledges the arbitrary nature of categorization based on race: "A vague unscientific term for a group of genetically related people who share certain physical characteristics" (Williams 1997:324). This realigned view of race that questions the deterministic perspective of race is more readily accepted, yet many medical and

biomedical researchers, educators, and practitioners grudgingly hold fast to biological-centric paradigms of race (Williams 1997; Williams and Mohammed 2009; Williams and Sternthal 2010).

Williams identified several negative consequences of accepting the biological construct argument in health research. First, an unfounded and non-scientific construct is legitimated when biological definitions of race are utilized. As a result, physicians often use a universal diagnostic approach for patients of a particular race, and ignore the possibility of other illnesses and conditions unique to the patient. For example, a universal approach to diagnose African American from varying geographic regions, such as the North or South, or even foreign-born such as Caribbean American, may all be considered black in America but represent vastly different attitudes, beliefs, and behaviors that can influence health outcomes. This approach runs the risk of overlooking these individual nuances. Second, from a broader perspective, the acceptance of race as a biological construct threatens those populations that find themselves at the bottom of the status hierarchy. That is, potential impact of social institutions, policy, and macro-level processes are ignored in diagnoses in lieu of biological explanations of social and health outcomes.

Racial Categories in Health Research

In light of these negative consequences, there are several reasons to justify the utilization of racial categories in health research. Race serves as a proxy to capture the historical injustices and inequality perpetuated in American society. Power and status dynamics are illuminated when members of a certain racial population are unequally represented according to socioeconomic measures and can be readily analyzed. Another

important consideration is that race is a fundamental organizing principle for social interaction, representing roles, behavior, and group membership and exclusion. Since race has permeated every major aspect of American society, it is an indispensable measure to investigate the social forces that impact disparate populations in the U.S. From a legislative/policy point of view, race has been used functionally to monitor the social mobility of different groups.

Theoretical explanations for physical health outcomes in response to race is nicely explicated by drawing from Jones' (2000) theoretical framework for levels of racism. Jones' framework conceptualizes racism on three levels: institutionalized, personally mediated, and internalized. Viewing race as a rough proxy for socioeconomic status, culture, and genes, she contends that race is a social construct that can capture the impact of racism on outcomes, such as health outcomes. This insight allows researchers to hypothesize that race-associated differences in health maybe due, at least in part, to the effects of racism.

The following details Jones' theoretical framework. First, *institutionalized racism* is defined as differential access to goods, services, and opportunities of society by race (Jones 2000:1212). Normative, often legalized, and able to perpetuate disadvantage, institutional racism is structural in nature. It affects customs, practice, and law and is manifested in differential access to power and material conditions between racial groups. We see institutional racism's effects on health through residential segregation, unequal healthcare systems in terms of access to and quality of care, and neighborhood conditions that lead to violence.

For instance, residential segregation can create pathogenic living and housing conditions. Since segregation is a key determinant for quality of life in neighborhoods, residents of isolated neighborhoods have less access to a broad range of services provided by government entities (Alba and Logan 1993). Physical deterioration and neglect of neighborhoods result from reductions in spending and delivery of goods, redlining of banks (limit/denial of financial services), and increase of undesirable use of land for purposes such as toxic waste and landfills. These factors increase the chances of disparate exposure to negative social influences in segregated neighborhoods that can have direct health effects.

Also, institutional racism can contribute to a combination of factors such as concentrated poverty, residential instability, joblessness among males, and high numbers of single parent households that may contribute to variation in levels of violent crime (Sampson and Wilson 1995). These conditions translate directly into homicide rates and represent a connection between discriminatory practices that lead to physical vulnerability through violence.

Second, *personally mediated racism* is conceived as prejudice and racism. Prejudice indicates differential assumptions of ability, motives, and intentions of others according to their race (Jones 2000:1212). Discrimination means differential actions towards others according to race (Jones 2000:1212). Personally mediated racism can be intentional or unintentional and includes acts of commission (disparate hiring practices) as well as omission (not mentioning apartment availability to minorities). Manifestations include: lack of respect, in form of poor service; suspicion, such as crossing the street to

avoid social encounter; devaluation, such as discouraging aspirations; and dehumanization, such as police brutality.

Personally mediated racism can have an effect on health through discrimination in health care, where the stigma of racial inferiority affects how minorities are treated. For example, studies show that whites are more likely than blacks to receive a broad range of medical services (Council on Ethical and Judicial Affairs 1990; Hausmann, Jeong, Bost, and Ibrahim 2008). Data from the Veterans Administration Hospital System (Whittle, Conigliaro, Good, and Lofgren 1993) and a study on black-white inpatient receipt of treatment and procedures (McBean and Gornick 1994) illuminated some troubling trends. Among Medicare inpatients, blacks were less likely than whites to receive all 16 of the most common procedures, such as cardiac catheterization, total hip replacement, and prostatectomy (McBean and Gornick 1994). Further analysis showed that blacks were more likely than whites to receive more extreme procedures such as amputation, removal of testes, and implantation of shunts for renal disease. The procedures investigated by McBean and Gornick (1994) indicate late diagnoses, mismanagement of chronic disease, and poor medical care. It is important to note that personally mediated racism reinforces structural barriers and is condoned, implicitly and explicitly, by societal norms. Multiple studies have investigated and confirmed the dynamics of unequal access to and quality of medical care based on race and ethnic differences (e.g. Mayberry, Mili, and Ofili 2000; Fiscella, Franks, Gold, and Clancy 2000; Johnson, Roter, Powe, and Cooper 2004).

Third, *internalized racism* shifts the focus of racism onto the victim. Defined as acceptance by members of the stigmatized races of negative messages about their own abilities and intrinsic worth (Jones 2000:1213), it erodes individual sense of value and

undermines collective action. Internalized racism manifests as: an embracing of 'whiteness,' such as bleaching one's skin; self-devaluation, such as rejection of ancestral culture; and resignation or loss of control, such as hopelessness or helplessness. Negative stereotypes and cultural images of stigmatized groups may adversely affect health. Indeed, a number of studies show that internalization of these negative images and beliefs are positively related to psychological distress, depressive symptoms, substance abuse, and chronic health problems (Taylor and Jackson 1990; Taylor, Henderson and Jackson 1991; Williams and Chung 1999; Willaims, Neighbors, and Jackson 2003; Williams 2004; Williams 2005).

By applying Jones' theoretical framework of the relationship between racism to health outcomes, researchers are better equipped to understand the effect of racism on physical health and eventually develop adequate interventions to address these aversive health outcomes.

Framework for the Study of the Role of Race in Health

Williams (1997) modified previous models of health to develop a comprehensive framework to study the relationship between race and health. Williams' proposes that individual/biological factors, cultural/ economic/political factors, geographic origin, and social phenomena like racism, all interact in complex ways to affect health. Race, along with other social factors, can interact additively or multiplicatively with other factors to influence access to resources and differentially affect social outcomes for various groups and individuals. The race-health framework provides a way to understand the relationship between these important factors so that they can be studied systematically.

Specifically, according to Williams (1997), societal forces and biology are basic causes of differences in health outcomes. The framework defines *basic or fundamental* causes as, "factors responsible for generating a particular outcome," where changes in these factors directly lead to changes in the outcome (Williams 1997:327). Examples of basic causes include culture, biology, geographic origins, racism, and economic structures (Williams 1997). *Surface causes* affect health outcomes, but changes in these factors do not have a direct correspondence to changes in the outcome (Lieberson 1985). They include factors such as stress from family demands, health behaviors, work and residential environments, religious beliefs and behavior, social ties, and various personality characteristics which could all differentially intervene and create unique relationships between race and health, but changing the content of the types of surface causes will not change the health outcome resultant from race-based inputs. Importantly, "as long as basic causal forces are in operation, the alteration of surface causes will give rise to new intervening mechanisms to maintain the same outcome" (327). That is, social inequalities in health outcomes stem from social inequalities in social institutions. To paraphrase Krieger's (1994) view on epidemiologists' adherence to a biomedically individualistic approach to understanding the "web of causation" of disease, researchers must move beyond this purview and identify the spider(s) that are responsible for creating the web (Williams 1997:327). Even if mechanisms attributed to social inequalities in health are modified, other intervening mechanisms would arise to maintain racial and socio-economic inequalities (Williams 1997).

This stance is echoed in research conducted by Lantz and colleagues (1998). They investigated whether the health behaviors of socioeconomically disadvantaged groups

contributed to increased mortality, based on the hypothesis that this diminished social position provided an elevated risk. After investigating four behavior risk factors associated with increased mortality in disadvantaged groups, researchers came to the conclusion that mortality in low-income groups is attributed to a wider array of factors other than health behaviors. Although modified health behaviors do contribute to some improvement in health outcomes, they do not account for overall socioeconomic differentials in health. Other factors such as disparate exposure to unhealthy environments, unequal access to comparable healthcare, and socioeconomic based stratification all complexly interact to produce differential health and mortality outcomes in groups (Lantz et al. 1998). This reflects the basic/surface cause argument that social inequalities in health will persist if root or basic causes are not significantly addressed.

Given the above premise, Williams (1997) suggests the following model. First, he argues that basic causes of health outcomes include culture, biology/geographic origins, racism, economic structures, and political/legal factors. He states that it is necessary to identify cultural subgroups of ethnic populations in order to understand more clearly how specific cultural beliefs and behaviors affect health. Religious beliefs, method of acculturation, socioeconomic impact and psychological impact of migration, timing of immigration, and cultural behaviors all influence health (Williams 1997). Biological factors and geographic origins of racial populations are also basic causes and may contribute to better understanding particular diseases that may affect populations that adapted to their geographical environment, resulting in particular conditions. Biology is not central to the concept of race, but it may partially identity mechanisms of evolutionary and geographic adaptation. For instance, high mosquito presence in the

Mediterranean and Africa may explain the increased susceptibility of populations from that region to sickle-cell anemia, a condition hypothesized to be an adaptive reaction to protect from malaria. The physiological differences in blood production of populations from that region may be successful to offset malaria but may create more vulnerability to sickle-cell anemia, not intrinsically due to race, but a combination of biological and environmental influences.

In addition, racism is independently included in the model because it serves as an important part of the structure of society (328). Racism is the mechanism to stratify easily identifiable groups. As a result of this function, racism has become a social force of its own, as discussed by Jones (2000) and others. Economic structure is another factor of the basic cause component and works through an institutional mechanism. The economic mobility of disadvantaged groups is strongly tied to institutional mechanisms, which serve as gatekeepers to resources such as education and employment. Residence and housing is a sociological catch-all for access to resources. Finally, political and legal contexts serve as the arena for competition for power and desirable resources (Williams 1997). As a result of group interests, government policies and legal codes have contributed to social inequality to advantage and disadvantage particular groups. All of the above serve to create and maintain inequitable social outcomes between groups, leading to unequal access to medical resources and quality of care.

Second, Williams (1997) argues that social statuses serve as the conceptual linchpin between basic and surface causes. Social statuses of interest are race and socioeconomic status (SES), in addition to gender, age, marital status, etc. Race is viewed as a social status category that encompasses power relations in society. The

model suggests that both sides of the argument should be considered where the social forces that produce race should be studied as well as the linkages between race and health. The position of race in the model advocates that multiple systemic vulnerabilities should be investigated to more clearly understand their unique influence on health outcomes.

Another important factor is SES which has long been associated with race. However, even when controlling for SES, racial disparities in health still persist. Due to inappropriate economic measures, misspecified models, or under-conceptualized relationships between race and SES, more research is needed to interpret the linkages between the two. The model situates an arrow leading from race to SES to highlight that "SES is not just a confounder of the relationship between race and health, but part of the causal pathway by which race affects health" (Williams 1997:329).

Third, surface causes reflect the macro social structures and processes that "create, initiate, and support particular conditions under which the various races and other social groups live and work" (330). The model suggests that other factors such as environmental (macro) and physiological (micro) factors should be integrated and considered when trying to examine the connection between race and health. Williams identified several intervening mechanisms that fall under this category: health behavior, stress in household, work, and neighborhood environments, psychological factors, culture, religious beliefs, and other behavioral antecedents. Biological processes represent the specific physiological mechanisms of environmental and genetic factors on health. This section of the model suggests a thorough depiction of disease processes that include not only environmental and psychological risk factors, but behavioral,

biochemical, and physiological responses and pathways. In this we can ascertain the physiological mechanisms that result from cumulative experiences of adversity in the form of racism and how it morphologically affects the body to result in variations of health outcomes.

Importantly, we need to understand the relationship between surface causes and basic causes. By understanding this connection, a more comprehensive effort can be enacted to delve into the root causes of disparate health outcomes and contribute to the development of appropriate interventions.

Background of Gender and Health

Trends in Health for Men and Women

For most industrialized countries, and specifically the United States, men have a shorter life span than women, yet women have higher morbidity and experience diminished quality of life in later years (NCHS 2009). Within the United States, there has been a decrease in the gender gap in longevity from 7.8 years in 1970 to 5.2 years in 2006 (NCHS 2009). Interestingly, women have led men in life expectancy since 1900, partnered with women exhibiting lower mortality rates in all age groups for the majority of causes of death (Rieker, Bird, and Lang 2010). Despite this pattern between men and women, in recent years, the gender gap in longevity is closing for the U.S., as well as most industrialized nations such as the United Kingdom, Sweden, Finland, and Australia (Annandale 2009).

In terms of physical health, cardiovascular disease (CVD) and immune function/disorders present clear examples of specific gender differences in health outcomes. CVD is the leading cause of death in men and women in the world and is

attributed with a third of deaths globally (Thom et al. 2006). In the United States, 8.4% of men and 5.6 % of women account for CVD morbidity (Thom et al. 2006). According to the World Health Organization (2006), in developed countries, men comprise the majority of CVD prevalence and mortality. CVD risk factors, such as smoking, genetic background (family history), depression, and diabetes, are deleterious for both men and women, but some research has shown that later-life onset of CVD in women can prove to be more harmful to women and contribute to more negative outcomes (Rieker, Bird, and Lang 2010:57). In addition, men have shown higher mortality rates than women due to Coronary Heart Disease (CHD) with a ratio of 3:1 before the age of seventy-five; however, gender differences in incidence and prevalence shrink as male and female cohorts get older (Verbrugge and Wingard 1987). Difference in gender can also be found in the number of years lived with and without CVD (Crimmins, Kim, and Hagedorn 2002). In recent years, research has shown that women are more like to be treated for hypertension and CVD beyond their middle-age years; however, biological mechanisms or only now being further researched to understand physical health outcomes (Rieker et al. 2010).

In addition, women are more at risk of developing autoimmune rheumatic disorders and genetic immune suppression disorders (Jacobson, Gange, Rose, and Graham 1997; Lockshin 2001; Walsh and Rau 2000; Rieker et al. 2010). Autoimmune diseases accounts for the majority of disability in men and women beyond middle age, yet, differences in women's morbidity is attributable to higher incidences for common disorders (Rieker et al. 2010:57). Differential autoimmune disease incidence and severity is attributed to varying exposure to environmental materials and experiences with stress

(Legano 2002; Lockshin et al. 1999; Rieker et al. 2010:57). Also, gender-specific sex hormones, such as testosterone and estrogen, have been linked to immune responses (Begg and Taylor 2006; Lockshin 2006; Rieker et al. 2010).

In regard to mental health, Rieker and colleague's (2010) review of the mental health literature found that depressive disorder rates in women are 50 to 100 % high than men's (Gove and Tudor 1973; Kessler et al. 2003-a; Kessler et al. 2003-b; Mirowsky and Ross 2003). For men, symptoms of depression must be diagnosed and acknowledged in order to seek treatment, and once done, matches the rates of women (Rieker, Bird, and Lang 2010). Misperceptions of the incidence and prevalence of depression in men has been attributed to underdiagnosis, men's resistance to seek treatment for perceived symptoms, and use of coping mechanisms such as drinking, substance abuse, and risk-taking behavior to attenuate sad or depressed feelings (Rieker et al.: 58).

Differences in the gender gap due to depression are more detectable in women during the reproductive years than in the early adolescent years (Bebbington 1996; Piccinelli and Wilkinson 2000; Rieker et al. 2010: 58). Girls and women have higher rates of reoccurring and chronic depression and longer episodes than boys and men (Aneshensel 1985; Kornstein et al. 2000; Sargeant, Bruce, Florio, and Weissman 1990; Winokur, Coryell, Keller, Endicott, and Akiskal 1993). When major depression is diagnosed, the course of the disorder takes a similar pathway for men and women (Rieker et al. 2010:59: Kessler, McGonagle, Swartz, Blazer, and Nelson 1993; Wilhelm, Parker, and Hadzi-Pavlovic 1997). Overall, women are more likely to experience more lifetime prevalence rates for depression and to have comorbid anxiety (Gregory and Endicott 1999; Kessler et al. 2003-b). Conversely, men are more likely to engage in "alcohol and

drug use, abuse, and dependence, as well as antisocial behavior disorders" than women (Rieker et al. 2010: 59; Kessler et al. 1994; Regier, Narrow, Rae, Manderscheid, Locke, and Goodwin 1993). The literature shows, then that the gender gap in mental health encompasses both age and disorder factors where women indicate higher depression and anxiety rates in relation to men experiencing more bouts with substance abuse, alcoholism, and anti-social behaviors (Rieker et al. 2010: 53; Bird and Rieker 2008; Kessler et al. 2003-a; Kessler et al. 2003-b).

In summary, factors that may lengthen or diminish the advantage of women over men in the U.S. can be attributable to macro influences, such as, environmental/behavioral protective and/or risk factors as well as more micro and intrinsic influences, such as genetic, biological, and hormonal processes (Annandale 2009). Despite one's disciplinary orientation, it is important not to oversimplify the social and biological dynamics that contribute to differences in health outcomes between men and women. Utilizing a binary approach to explain gender differences in health is subject to limitations, such as the inclination to treat men and women as homogenous groups, the lack of consideration of gender identities and sexualities, and the tendency to create and utilize oversimplified models to explain complex processes that fixate more on gender differences versus similarities (Rieker et al. 2010). Even moreso, clinical researchers may be subject to minimize social/environmental influences and "reify biomedical models that portray men's and women's health disparities as inherently biological or genetic" (Rieker et al. 2010:53). Although professional biases persist, recent trends in clinical research has more often acknowledged that "social and biological factors interact in complex ways , and that this explains not only health or illness at the

individual level but also population health and the observed patterns of men and women's health and longevity in general" (Rieker et al. 2010:53). Consistently moving towards a more integrated and comprehensive approach to studying the complex interplay between gender and health will contribute to a better research and a more accurate depiction of the dynamics at play.

Underlying Mechanisms that Contribute to Gender Differences

Researchers in recent years have more often converged on the notion that mental and physical health is symbiotically intertwined. For instance, physical health issues can present symptoms that can directly influence one's state of mind, such as feelings of depression and fatalism, in light of the illness. Conversely, mental health issues can create or exacerbate the length and/or intensity of physical health conditions, which ultimately can spur more mental health issues, such as anxiety (Rieker et al. 2010).

A primary mechanism that psychological stress can link to physical health is through health behaviors of individuals (Rieker et al. 2010). Whooley (2008) and colleagues conducted a longitudinal study with cardiovascular patients and found a link between depressive symptoms and CVD outcomes as a function of differential health behaviors enacted by the patients. The study showed that increases of symptoms attributed to depression led to increases of negative health behaviors, such as smoking and alcohol consumption, and decreases of positive health behaviors such as physical activity (Wooley et al. 2008).

Health behaviors are viewed as critical pathways that can either exacerbate or protect physical health outcomes. A study conducted by Grundtvig and colleagues (2009) conducted a retrospective study on heart patients that assessed the first incident of

a heart attack. Results showed that for patients that smoked, men experienced an initial heart attack episode at the age of seventy-two, in comparison to sixty-four if they didn't smoke. Women experienced first heart attacks at age eighty-one versus age sixty-six if they did not smoke. The researchers concluded that the negative health behavior of smoking diminished the health advantage of women via the gender gap regarding the initial age of heart attack, from nine to two years. Furthermore, smoking lowered the age of menopausal onset, which diminished women's physiological protection from heart disease (Grundtvig et al. 2009).

In assessing the various mechanisms and pathways that concurrently operate to contribute to gendered differentials in health, Bird and Rieker (2008) developed a comprehensive framework that incorporates multi-faceted factors. This framework suggests that individual choices made by individuals regarding health are determined within the context of family, work, and community. In terms of work and family "occupations and social roles carry expectations, create routines of daily life, and establish norms of social interaction, all of which contribute to stress levels, health-related behaviors, and coping styles" (Rieker et al. 2010:64). The confluence of gender roles and work opportunities can have a cumulative effect on health behaviors. The type of jobs available, the level of agency within an occupation, the stress allotted to different positions, and a host of other factors, all can have distal effects on choices for an individual and indirectly or directly affect negative behaviors such as smoking, poor diet, and substance use. As these multiple agentic factors coalesce with social expectations in differing ways, men and women may suffer or flourish in health outcomes as they attempt to operate within expected gender roles, respond to stress situations as they arise,

and adopt the most expedient behaviors to address a multitude of responsibilities (Rieker et al. 2010).

Also in this framework the community is defined as "both social networks of relationships with family, friends, and acquaintances at home and at work and the physical environment in which one lives" (Rieker et al. 2010:64). Viewed as a continuum, a community can represent more or less opportunities or options to access resources, can inhibit or exacerbate the effects of stress, or can be supportive or draining to an individual (Rieker et al. 2010). Men and women are expected to fall along different points on the community continuum, which would on average determine the available resources and stressors they encounter. Differential exposure "to specific daily stressors…affect their stress levels and responses due in part to gender differences in role activity and role expectations" (Rieker et al. 2010:64). Furthermore, "gender roles and responsibilities interact with resources and barriers such as employment opportunities or security, the provision of child care and elder care (both as givers and recipients of each), mass transit, and public safety" and by extension have consequences on physical health outcomes based on behaviors defined by availability or lack of optima choices (Rieker et al. 2010:65).

Social policy addresses the government on the federal, state, and local levels, and serves as a point of intervention to structurally address health differentials. Social policies affect health via "universal day care, universal access to education, and retirement benefits not tied to employment or retirement benefits that affect continued employment" (Rieker et al. 2010:65). According to the framework, "a combination of recent economic trends and employment policies differentially affect men's and women's

exposure to job and income loss and the related risk of loss of health insurance"…tying together policy to health outcomes in a gendered way (Rieker et al. 2010:65). This model allows for a comprehensive overview of how gender affects choice, opportunity, and behavior on multiple levels, and how these factors can positively or negatively affect health outcomes.

Race, Gender, and Health

African Americans, Gender, and Health

The top four causes of death for blacks as identified by the National Center of Health Statistics (2009) are heart disease (CVD), cancer (malignant neoplasms), stroke (cerebrovascular), and unintentional Injuries (accidents). Of the leading causes of death for all blacks per 100,000, men and women had mortality rates of 182.6 due to heart disease, 159.5 due to cancers, 43.1 due to stroke, and 35.2 due to accidents (Centers for Disease Control and Prevention, National Center for Health Statistics, National Vital Statistics System 2006). More specifically, the top three leading causes of death for black men per 100,000 were 191.8 due to heart diseases, 172.3 due to cancers, and 50.8 due to accidents (homicide-40.6 and stroke-39.3 rank at numbers 4 and 5) in 2006. Comparatively, the top three leading causes of death for black women were 174.3 attributed to heart disease, 147.7 due to cancers, and 46.5 due to strokes per 100,000 (diabetes-34.1 and kidney disease-22.2 rank at numbers 4 and 5), also in 2006.

Health disparities for blacks can be attributed to factors such as discrimination, diminished access to health care, and various cultural barriers (Health, US, 2010). Health status outcomes for blacks are compromised to the point that life expectancy has been assessed in 2007 at 73.6 years. This is in comparison to the average American life

expectancy of 77.9 years, where whites average 78.4 years (Health, US, 2010). Cigarette smoking behavior is identified as one of several salient and modifiable risk factors that blacks exhibit a disproportionately high prevalence, of which, is directly attributed to the top three leading causes of death for all U.S. racial populations. For black men and women, the burden of health is magnified, due to various causes.

Other than in the poorest countries where life expectancy is low for both men and women, the female advantage in longevity holds consistently for most nations (World Health Organization 2006). Nevertheless, across age groups, the contributing factors that cause death and the gender differences in mortality rates vary (WHO 2008). In regard to infants within the United States and other developed nations, biological causes are attributed to the higher mortality rates of boys in comparison to girls, which can include X-chromosome specific diseases and congenital abnormalities (Rieker et al. 2010:53). For young adults, behavioral causes such as car accidents and homicide become more predominant to explain the gender gap between 19 and 22 years.

Despite the consideration of race, ethnicity, or age, women are more like than men to be poor (McBarnette 1996). blacks lag behind whites in regard to median years of education, which by extension, affects patterns of income (McBarnette 1996). Results from nationally-representative surveys show linkages between health status, poverty, and socioeconomic status where “the poor health status of African American women, collectively is viewed by many as a direct result of poverty, racism, and a lack of access to power and prestige” (McBarnette 1996:44). For black women, “the results of racism and sexism intersect to create a double whammy. Both are motivated by similar economic, social, and psychological forces and arise from the struggles for black civil

rights and for women's rights" (44). Standing at the crossroads of race, class, and gender, black women find themselves tenuously propped at the intersection of sometimes conflicting influences.

The tendency to view black women as a homogenous group may be easy for analysis purposes but do not reflect the vast cultural diversity that exists in this population. The cultural experience of black women differs in regard to language, learned behavior, value and belief systems and range from varying points of origin such as the continent of Africa, the Caribbean, English-, French, Dutch- Portuguese-, and Spanish-speaking nations, as well as urban and rural areas within the Americas (McBarnette 1996:45). In sharing similar physical characteristics such as varying degrees of black skin and features, black women are subject to the assumption that they share similar social and health problems, as well as similar cultural backgrounds, values and beliefs (McBarnette 1996). As a product of a vast and varied range of factors such as culture and history, understanding the health outcomes associated with black women is at a minimum, complex and involves a careful and comprehensive approach.

For both black men and women economic, cultural, and historical factors range from poverty, comparable access to health care, and a host of differing social burdens that interrelate in varying permutations to shape the social experience of both groups. Du Bois ([1899] 1967) famously characterized the condition of blacks in America as the "negro problem" in his book The Philadelphia Negro, where he related the "the higher level of poor health for blacks was one important indicator of racial inequality in the United States" (Williams and Sternthal 2010:S15). Despite the false claim that health disparities of his time were the result of innate biological differences, Du Bois attributed

health differentials to differences in "social advancements" and "vastly different conditions" that blacks compared to whites resided within (Williams and Sternthal 2010: S16). In the late nineteenth and early twentieth centuries, Du Bois ([1899] 1967) observed that "black men had poorer health than black women and that the gender differences in health were larger for blacks than for whites" (Williams and Sternthal 2010:S15). Coined by Du Bois as the "social condition of the sexes in the city" (Du Bois [1899] 1967:151), he noted that "although domestic work was the only option for black women, work was more available for black women than for their male counterparts…the conditions of work for black women were more conducive to health than those for black men" (Williams and Sternthal 2010:S16). Du Bois's critical analyses of his time have informed and set the stage for better understanding of gender-based health differentials in blacks today.

The social status category of gender allows researchers to gain invaluable insight into how multiple social status categories work in unison with others to create divergent distributions of health outcomes (Williams and Sternthal 2010). In 1950, the racial gap in health between whites and blacks resulted in white men and women living longer than black men and women by 7.4 and 9.3 years, respectively. In 2006, white men still lived six years longer than black men and white women lived four years longer than black women, despite increases in life expectancy for all groups and still showing a gendered effect (Williams and Sternthal 2010:S16). Williams and Sternthal (2010) observed that the "racial gap in health is larger for men than for women, and there have been larger reductions in the racial gap in life expectancy for women than for men over time" (Williams and Sternthal 2010:S17).

In light of recent research, sociologists and multi-disciplinary researchers are advocating more inquiries into racial differences in health as a way to better understand how the social distribution of disease is potentially influenced by social exposures and biology (Williams et al. 2010). Williams (2010) and colleagues extend this question even further into the biosocial realm and consider the interactions of the social environment with innate and acquired biological factors. Delving into the realm of "epigenetics," defined as "changes in gene expression that are not caused by changes in the nucleotide sequences of the DNA," the question is raised as to the explanatory plausibility that the social environment can cause changes in gene expression (Williams et al 2010:S18). Since racial groups differ on "a broad range of social, behavioral, nutritional, psychological, residential, occupational, and other variables" (Williams and Sternthal 2010:S18), it is feasible that the search for the linkages between biological, psychological, and social realms can diminish the gaps in understanding these relationships between race, gender, and health.

In the next chapter, I review the overall concepts of stress, the resultant coping processes that are enacted and how the two are related. This includes a discussion of the theoretical frameworks applicable to generalized stress processes, and the more specific race-based processes that inform and facilitate my categorizations and analyses. This will then be followed by a discussion of my predictions and a literature review to contextualize the choice of the variables used in my analysis.

CHAPTER 3: STRESS MODEL PROCESS and PREDICTIONS

The Concept of Stress and the Stress Process Model

Stress process models represent generalized views of how individuals react and respond to threats or stimuli in the environment. Researchers have formulated several models that attempt to explain the stress process from varying perspectives, but all reflect the central tenet that "social and psychological sources of stress influence health outcomes" (Avison and Gotlib 1994:4). The complexity of studying stress is that the concept overlaps with various understandings and approaches from different disciplines, such as psychology, sociology, and epidemiology. Also, the idea of stress is mutable based on the conceptual model one uses, ranging from the biological stress model, the Life-Change Events perspective, and the Engineering Stress model. As listed, each subsequent model conceptually built upon its precursor to ultimately contribute to our current understanding of the stress process.

In addition, there is no single or all-encompassing definition of stress; however, some scholars define stress as the stimulus or, "the problems people face," while some focus on psychological stress which refers to the generalized response to the problem (Wheaton 1994:77). Other scholars view the mediating process between stimuli and response as 'stress.' Thus, Wheaton (1994) defines stressors as the problem, stress as the processing state, and distress as the generalized behavioral response (p. 77). He focused more on stressors rather than the concept of stress, where according to this view stress is defined, "in terms of a biological state of the body – a generalized physiological alert…in response to threatening agents" (Wheaton 1999:177). Stressors are defined as, "conditions of threat, demands, or structural constraints that, by their very occurrence or existence, call into question the operating integrity of the organism" (Wheaton 1999:177). According to this view, threats are any challenge to an individual that implies

harm or damage. Demands are defined as, "the 'load' component of stressors, indicating the level of current expectations, duties, and responsibilities that either accrue in social roles or are precipitated by specific life events" (p. 177). Structural constraints refer to social locations within the social hierarchy dictated by serious or severe non-self-limiting social disadvantage (Wheaton 1999:177).

According to the *stress process* paradigm, stressors are unequally distributed across key social statuses, such as gender, class, race, and age (Pearlin 1999). There are three general elements of comprehensive stress models that describe the relationship between sources of stress and stress processes. First, there is a general acknowledgement that social and psychological sources of stress influence health outcomes (Avison and Gotlib 1994). The second postulate is that certain factors, "mediate the experience of stressors and the expression of symptoms of illness or dysfunction. These mediating factors either intervene between stress and illness or have interactive or buffering effects that moderate the impact of stressors on distress and disorder" (p.5). One important domain of mediators is comprised of three critical groups of mediating factors: social resources/social support, coping resources, and psychosocial resources (generated externally from the individual). Another domain of important factors refers specifically to an individual's psychosocial resources, including self-efficacy and self-esteem (Avison and Gotlib 1994:5). These factors are generated and manifest internally within the individual, but are affected by situational factors.

The third main element of stress process models is the inclusion of a component that addresses, "variations in coping abilities and differences in the use of specific coping strategies" (Avison and Gotlib 1994:5). Social context and antecedent influences are

important to understand the conditioning factors that potentially shape active or passive responses to stress and may attenuate the impact of stressors.

Avison and Gotlib (1994) list several advantages of using the stress process models: 1) they are dynamic and explicitly consider changes in functioning over time; 2) they integrate principles from various disciplines, accounting for a more comprehensive approach; and 3) they are generalizable to a broad range of functional outcomes (p.6). For example, not only have psychological outcomes, such as depression, been investigated, but symptoms of physical disease and determinants to negative health behaviors such as alcoholism and smoking have been examined (Avison and Gotlib 1994). Last, the stress process model acknowledges that an "individual's functioning is importantly influenced by others in their social world" (Avison and Gotlib 1994:7). This accounts for not only the potentially stressful life events that are created and involve friends and family, but alludes to the social resources that may or may not be available from these social ties to counter or exacerbate stressful circumstances.

In the engineering stress model, stress can be acute and distinct, or chronic, continuous and overarching, similar to stressors people are exposed to in society. *Chronic stressors* are the counterpart of *event stressors* and involve more than the time course of the stressor but include, "differences in the ways in which the stressor develops, exists, and ends" (Wheaton 1994:82). The term chronic is applied to stressors less to indicate "a time course," rather than "designate the fact that this subclass of stressors will have a typical time course very unlike that of an event" (Wheaton 1994:82). Wheaton conceptualizes chronic stressors as "continuous stressors in an approximate sense, standing for problems and issues that are either so regular in the enactment of daily roles

and activities, or so defined by the nature of daily role enactments and activities, that they behave as if they are continuous" (Wheaton 1994:82). Furthermore, chronic stressors are less self-limiting than life events and are "typically open-ended, using our resources in coping without promising resolution. Conversely, life events will end at some point" (Wheaton 1994:82). Functionally, this allows researchers to empirically distinguish between the effects of an event, such as *getting* a divorce, from a chronic stressor, such as *being* divorced, where one aspect of this process is to "distinguish between problems of identity loss and identity adjustment" and the other aspect are the problems of "continual vigilance and pressure" (Wheaton 1994:82). Another example of this distinction is, "the loss of a spouse versus the abstract absence of a partner," which Wheaton conceptualizes as two stressors (Wheaton 1994:82). The former is an event and the latter is a chronic stressor.

In this way, the engineering model works well in understanding different forms of stress on the individual. In the same way that catastrophic and continuous forces have differing effects on the integrity of different materials, event and chronic stressors have differing effects on the psychosocial aspects of an individual. In the same way life events require a "stronger role for coping resources that can be easily mobilized but exist for short periods only," such as for concentrated levels of support when a loved one passes, chronic stressors demand "more stable resources that are automatically rather than conditionally activated" (Wheaton 1999:182).

Furthermore, it is important to make distinctions between event and chronic stressors because, "they are involved in a dynamic interplay of causation over time, leading to either the spread or containment of stress experience over people's lives

depending on the sequence and types of stressors involved" (Wheaton 1999:182). That is to say, earlier life events that are stressful may complexly influence the context and impact of later life events at varying degrees (Wheaton 1999).

From these insights, Wheaton (1999) developed the concept of a *'stress continuum'* which maps several types of distinct stressors between the empirically distinct anchors of event and chronic stressors. Drawing from key components of earlier models that introduced important ideas that help explicate the stress process, the stress continuum comprehensively integrates key concepts. Specifically, the biological stress model (Wheaton 1999) introduced the idea of stressors as external threats to an organism which must then respond to mitigate the threat. The Life-Change Events (Wheaton 1999) model noted that stressors can be conceptually expanded from defined events to chronic occurrences that create prolonged responses from the individual. As noted previously, a conceptual distinction is introduced in this model between event and chronic stressors. Drawing from the biological, engineering, and life-change event models, Wheaton laid out a continuum of types of stressors between the anchors of 'events' and 'chronic stressors,' where the left-most anchor represents the most discrete events and the right-most anchor represents the most continuous.

First, life events are characterized as being distinct and observable events that represent significant life changes with a clear onset and offset, such as job loss and divorce (Wheaton 1999). Once in motion, clear sub-events are enacted that dictate the progression of the event, usually manifesting as a ritualized process (p. 183). Examples are signing divorce papers during divorce proceedings or updating a resume in the case of job loss. Second, chronic stressors, "1) do not necessarily start as an event, but develop

slowly and insidiously as continuing and problematic conditions in our social environments or roles; 2) typically have a longer time course than life events, from onset to resolution; and 3) are usually less self-limiting than life events" (Wheaton 1999:183). Variability in the development, manifestation, and resolution of the stressor all influence the time course of event and chronic stressors and define the distinction between the two (Wheaton 1999). A classic example of the differences between the two is divorce: when one gets a divorce (event), he or she must adjust to being divorced (chronic) as an ongoing state (Wheaton 1999).

Types of Stressors

Wheaton (1997) identified seven forms of chronic stress. The first form is *threats*, indicated by regular physical abuse or residence in high-crime areas where the threat is continuous. The second is *demands* brought on by expectations and duties that are difficult or cannot be met with available resources. Role expectations can lead to overload due to cross- and within-role obligations. The third form is *structural constraints* which are comprised of denial of access to necessary opportunities and resources and structured reduction of alternative choices. Fourth is *underreward*, which refer to diminished outcomes as related to the relative level of inputs committed; in other words, getting less for what one puts in relative to another person such as receiving less economic compensation than a coworker for doing the same job. The fifth form is *complexity* which refers to the number of demand sources, conflict of responsibilities across roles, unstable life arrangements, or complexity in role execution. The sixth is *uncertainty*, which represents a lack of resolution for an ongoing issue, such as, being forced to wait to resolve a condition or issue. Finally, the last one is *conflict,* which

refers to an institutionalized negative dynamic of non-resolution depicted by differing goals and values between two parties, where one is systemically disadvantaged over the other (Wheaton 1999:184).

An example of a stressor that falls between discrete and continuous anchors on the continuum is daily hassles. Daily hassles refer to the "the irritating, frustrating, distressing demands that to some degree characterize everyday transactions with the environment" (Kanner 1981:3). Examples of daily hassles can be traffic jams, noisy neighbors, or differential and discriminatory treatment at a restaurant. Although this type of stressor may appear mundane, the ongoing occurrence of these minor or "micro events" can accumulate over time to present negative health outcomes. These micro events, or daily hassles, appear on the nexus of the stress continuum between life events and chronic stressors and are considered the middle ground stressor within Wheaton's (1999) classification scheme (pg. 186).

Macro-stressors refer to stressors at the macrosocial system level above the individual and interpersonal level (Wheaton 1999). Similar to daily hassles, they encompass both characteristics of event and chronic stressors with the distinction that they span more general range of discrete occurrences, like disasters, and chronic conditions, such as recessions (Wheaton 1999: 187). Examples of macro-stressors are economic recession, disasters, war, or over-encompassing population rates such as high-school dropout rates (Wheaton 1999).

Finally, nonevents are episodes of lack of change that can be just as stressful as change (Wheaton 1999). Drawn from Gersten et al.'s (1974) arousal theory, a nonevent is defined as, "an event that is desired or anticipated and does not occur…alternatively, a

nonevent could be seen as something desirable which does not occur when its occurrence is normative for people of a certain group" (p. 169). Examples of this stressor are not being married by a particular age, employment promotion, or lack of children by a certain age (Wheaton 1999). The uncontrolled and unwanted waiting for a certain outcome is the source of stress in this situation where the desire for an outcome that is delayed or denied becomes an event within itself, more along the lines of a chronic stressor.[1]

Although the general model of stress acknowledges racism as one of many stressors, it has been criticized for not being specific enough to satisfactorily address the complex influence of race and social interaction. Since race and perceived discrimination are important factors in my study, I will review a racism-related stress model in the next section. This racism-specific model will add another layer of investigative rigor in trying to understand stress, race, and health outcomes.

Factors that Affect Stress and a Potential Racism-Stress Model to Study Them

The generalized model of stress processes explores the complex interaction between various stressors, cognitive processing, and behavioral outcomes and responses, as well as acknowledges racism as a stressor. This model, however, does not focus enough on the distinct and interactive influence of racism on individuals and groups in relation to differential and disparate outcomes ranging from the individual (micro) to the structural (macro) level. Harrell (2000) addresses the multi-faceted and complex

[1] Traumas are conceived as events that are so serious and overwhelming they are distinctive from usual stressful events. Wheaton (1999) surmised that the following elements must exist to be characterized as traumatic: "1) must be more severe in level of threat than the usual life change event; 2) they may occur either as isolated events or as long-term chronic problems; and 3) because of their severity, they are thought to have greater potential for long term impacts than most other types of stressors" (pg. 189). Traumas are identified by the magnitude and the imputed seriousness of the stressor beyond the measurement of the life event and chronic stress scale (Wheaton 1999). Although traumas are classified as the most extreme types of life events, sudden traumas are viewed as the most discrete and devastating type of stressor along the continuum (Wheaton 1999). Examples of traumas are natural disasters, sexual abuse, or loss of a loved one, again, magnified even moreso in cases when the event is sudden or unexpected.

relationship between racism, stress, and health outcomes (both physical and mental) by developing the model of racism-related stress and well-being. Through integration of theory and research and taking into account the varying impact of structural aspects of society and accompanying historical contexts, the racism-related stress model outlines the significant factors that define experiences of racism and its personal and social repercussions.

The unique experience of people of color harken back to W.E.B. DuBois' (1903) treatise on the dual existence of blacks in America, where blacks balanced two modes of social interaction: one with other blacks and the other with whites and larger society. Harrell's (2000) advocacy and development of a racism-related stress model note that, "for people of color…life stress must also include consideration of experiences that are related to the unique person-environment transactions involving race" (44). The particular attention paid to the person-environment relationship with the account of racism also acknowledges the intangibility and difficulty of identifying and expressing one's connection to racism. Harrell (2000) notes that "the stress--and potential damage--of racism lies not only in the specific incident, but also in the resistance of others to believing and validating the reality or significance of one's personal experience" (45). An added level of stress on people of color is not only dealing with the racist experience but contextualizing and rationalizing the reasons for the experience. Reminiscent of Feagin's (1991) research, Harrell validates that the, "process of questioning one's observations and perceptions, replaying a situation in one's mind over and over again, attempting to explain it to others, and entertaining alternative explanations can be stressful above and beyond the original experience" (Harrell 2000:45).

Drawing from these ideas, Harrell (2000) identifies and categorizes the multiple forms of racism that translate into stress. She develops a racism-stress model that overlays the general model with racism-specific factors and illustrates the varying impacts. Harrell (2000) provides six types of racism-related stress: racism-related life events, vicarious racism experiences, daily racism microstressors, chronic-contextual stress, collective experiences, and transgenerational transmission. The racism-related stress classifications complement and fit nicely in the generic stress literature that identify three primary sources of stress in general: episodic stress (direct and vicarious racism experiences), daily hassles (racism microstressors), and chronic strain (chronic-contextual, collective, and transgenerational transmission) (p. 45).

Racism-related life events are stressors that are significant life experiences that are clearly demarcated as having a beginning and an end. The event may be important enough to influence other aspects of an individual's life; however, the event of origin itself is temporally defined (Harrell 2000: 45). Examples are being rejected for a loan or experiencing housing discrimination. *Vicarious racism experiences* capture stress that is relayed through observation and accounts from others. These experiences can result in, "anxiety, a heightened sense of danger/vulnerability, anger, and sadness, as well as other psychological reactions" (Harrell 2000:45). Examples are hearing family stories of experiences with Jim Crow laws and reading about the James Byrd dragging death in Texas (Harrell 2000:45).

Daily racism microstressors refer to subtle expressions of racism within the context of contemporary America and are described as "microaggressions." Used as way to reinforce the salience of race/ethnicity difference, they include, "subtle, innoculous,

preconcious or unconscious degradations and putdowns" (Harrell 2000:45). *Chronic-contextual stress* refers to the macro-based sources of stress that, "reflects the impact of the social structure, political dynamics, and institutional racism on social-role demands and the larger environment" on individuals that must react, cope, and adapt (Harrell 2000:46). Examples are high concentration of gun and liquor stores in urban environments, or being the statistical minority in predominantly white settings such as the workplace. Harrell (2000) makes a particular note that individuals may or may not attribute an encounter to racism even if he or she is egregiously affected.

Collective experiences refers to the concept that racism of a "cultural-symbolic" nature may exhibit "sociopolitical manifestations" and can be felt by members of the group, even in the absence of personal encounters. Identification with other race/ethnic group members' incidents of racism is enough to reify this experience– individuals do not have to perceive or hear of an experience to feel the impact of this source of stress, which makes this distinct from vicarious experiences (Harrell 2000). *Transgenerational transmission* refers to the historical context of racial/ethnic groups and their relationship to broader American society. The historical context of different groups influences the content and form of information passed down to subsequent generations and shared within the community, ultimately framing the origin and transmission of particular stressors that may be salient for particular groups. Over the course of a lifetime, a person may experience varying degrees of each of these multiple sources of stress. Harrell (2000) acknowledges this fact by drawing from Feagin's (1991) research: "to emphasize the cumulative impact of personal, family, and group experiences over time, suggested that the impact of racism is much greater than the sum of individual incidents" (p. 47).

Harrell provides the following framework to explore racism-related stress and well-being, identifying the role of antecedent and mediating variables in a racism-related stress process. According to Harrell (2000), the first category of variables is *antecedent variables* which are segmented into two main domains: person and socioenvironmental factors. *Person factors* are defined as "the characteristics that people are born with and are easily observable by others" (Harrell 2000:49). These factors are used by others to access and cue the use of cognitive categorizations, such as stereotypes, that inform individuals of general expectations of others regarding skills, behavior, and personality (Harrell 2000). Harrell drew from Essed's (1991) work, which was instrumental in developing an interdisciplinary theoretical framework and methodology to facilitate the study of racism from an institutional and personal level. Essed's (1991) research and approach attempted to reconcile the ostensibly contentious nature of macro vs. micro paradigms used by scholars that viewed racism as "inherent in culture and social order" (Essed 1991:2). According to her perspective, racism is more than "structure and ideology," yet, "as a process it is routinely created and reinforced through everyday practices…which connects structural forces of racism with routine situations in everyday life. It links ideological dimensions of racism with daily attitudes and interprets the reproduction of racism in terms of the experience of it in everyday life" (Essed 1991:2) By conceptually bridging the macro-micro expressions and experiences of racism and applying her framework to cross-cultural analyses, her work has been mirrored and expanded by other researchers, such as Feagin (2005), to further understand the nuances of racism on the interpersonal level as distilled from structural influences.

This can be even further extrapolated to better understand intra-racial gender dynamics as it is attributed to racism. Noting Essed's (1991) research, racial stereotypes can be gender specific where men and women within the same racial group may have drastically different experiences with racism (Harrell 2000:49). Welch, Sigelman, Bledsoe, and Combs (2001) have conducted research that has shown less reports of discrimination from black women in comparison to black men. This variance in perceptions of discrimination may be a function of differential stereotypes enacted in differing social contexts that result in disparate views of unequal treatment. Hunt, Wise, Jipguep, Cozier, and Rosenberg (2007) contextualized this phenomenon in terms of neighborhood racial composition and perceptions of racism where they suggest that black men and women interpret public space interactions differently, based on their treatment by non-black others observing them through the lens of stereotypes. For instance, the "threatening black male" stereotype may be more salient for black men and translate into an interpretation that "people are afraid of me." In comparison, black women may report being "followed in stores" due to negative stereotypical expectation they may shoplift in comparison to non-black customers (Hunt et al. 2007). Negative stereotypes attributed to blacks as an aggregate are: unintelligent, lazy, prefer welfare, and violence prone (Williams and Williams-Morris 2000).

Negative stereotypes attributed to black women are: (1) the Mammy that is maternal and is expected to care for the well-being of other families (e.g. the maid); (2) the Matriarch whom is assertive and runs the household while emasculating the husband; (3) the welfare mother who does not work and lives off of public financial support; and (4) the jezebel that represents a highly sexualized and masculine form of femininity (Hill-

Collins 2000). Negative stereotypes of black men, particularly facilitated by the media, are: black males are violent and threatening (Davis and Gandy 1999). Also, black males are crime-prone and dangerous and are ascribed the characteristics of criminality, incivility, toughness, and street-smartness by non-black observers (Anderson 1990).

Socioenvironmental factors are represented as the "social and community variables that are part of an individual's ecological context" (Harrell 2000:49). These can be regional/geographic location (e.g. northern vs. southern states), sociopolitical contexts (e.g. Affirmative Action reform), SES (e.g. high vs. low income) and salient social events (Rodney King beatings) that influence the nature of the racism experienced (Harrell 2000).

The second category of the racism-related stress model are *familial and socialization influences*. These factors comprise the individual characteristics, cultural values, attitudes, and method of coping adopted by a person and can influence the type of stress source one can be exposed to, such as vicarious, collective, and transgenerational (Harrell 2000:50). Family characteristics and dynamics refer to family structures and roles. The way a family is structured and interacts determines the communication style, ways of dealing with conflict, and the range and quality of relationships one develops and maintains over the life cycle. Racial socialization refers to either the positive or negative internalization of racial stereotypes and can potentially lead to racism-related stress. This process can operate on the family, community, and institutional levels (Harrell 2000).

The third category focuses on *sources of stress*, and has three categorizations: racism-related stress, other status-related stress, and generic stressors. Racism-related stress includes racism-related life events, daily racism microstressors, chronic living

conditions, collective/group perceptions, and transgenerational transmission of trauma (Harrell 2000). Other status-related stress include the experience of sexism, heterosexism, religious discrimination, disability discrimination, ageism, and classism (Harrell 2000:49). Generic stressors are episodic life events, daily hassles, role strain, multiple roles, and role conflict (Harrell 2000).

The fourth category of the model and represent the *internal and external* factors that mitigate or exacerbate the effects of stress on the individual. These factors are either generated within the individual or from the environment and influence the saliency of stress on the individual. Internal factors refer to person-centered factors, whereas external factors include the range of resources on the interpersonal, structural, and community level that are available for use (Harrell 2000). There are four main domains for internal and external factors: internal characteristics, sociocultural variables, affective and behavioral responses to stress, and external resources.

Internal characteristics are individual characteristics that include cognitive processes (e.g., attributional style) and relatively stable personal characteristics, such as self-esteem (Harrell 2000:50). *Sociocultural* factors include those "personal characteristics that are linked to cultural and sociopolitical context. Examples are racial identity, racism-related coping styles, and acculturation" (Harrell 2000:50). *Affective and behavioral responses* to stress refer to the emotions and responses generated after experiencing a stressful incident that occurs subsequent to stressful experiences (Harrell 2000: 50). Understanding appraisal processes (Lazarus & Folkman 1984) and causal attributions (Amirkan 1990) are important to understanding the impact of stress on outcomes (Harrell 2000:50).

External resources refer to social support and are partly determined by antecedent variables (e.g., race/ethnicity, socioeconomic status, geographic location) and by the nature of the racism experience (Harrell 2000:52). Despite need and desire of utilization, some resources may not be available due to multiple factors. External resources can be found on the intragroup, community, intergroup, and societal levels.

The fifth category of the racism-related stress model focuses on *adaptational outcomes* in five general domains: physical, psychological, social, functional, and spiritual. Physical health outcomes include "hypertension, cardiovascular reactivity, risk behavior (e.g. cigarette smoking)" (Harrell 2000:49). Psychological outcomes are "depression, anxiety, trauma-related symptoms, hostility" (Harrell 2000:49). Social outcomes can influence "social connectedness as well as intragroup and intergroup relations" (Harrell 2000:49). Functional outcome examples are "job performance, academic achievement, parental functioning" (Harrell 2000:49). Spiritual outcomes can include "loss of faith, meaninglessness and existential angst" (Harrell 2000:49).

Overall, Harrell's (2000) racism-related stress model is consistent with the generalized stress model with racism-specific factors. Her model comprehensively outlines the antecedent, mediating, and outcome factors associated with stress, but fills in the gap of knowledge of how racism situates with the stress paradigm. Although race and racism is one form of a stressor, it has distinct and complex consequences on social interactions between racial populations. The next section conceptualizes coping and the strategies enacted to offset stress.

Coping as a Response to Stress

Using the analogous premise of the differing structures of metals to withstand the external force of stress from the engineering model, individuals are also conceived as having differing capacities to withstand stress. In the same way the material make-up of steel is stronger than brass, individuals have different levels of tolerance based on their physical and mental constitution. Whether through individual characteristics or access to resources such as social networks to offset stress, a person's capacity to resist stress is an amalgam of personal and acquired resources. All individuals are expected to deal with some form of stress throughout their life experience. Chronic stress is especially deleterious, due to its ongoing nature and extended activation of physical and mental resources to neutralize stress. As observed in physics (metal composition), chronic exposure to stress eventually compromises the physical and mental integrity of the person and the resources put in place to protect the individual, leading to an eventual breakdown. This is additionally maladaptive when an individual is exposed to more stressful circumstances with less coping resources, leading to a decreased chance of dealing with stress positively. In this section, I discuss the concept of coping strategies and the different responses used to offset stress.

Coping Strategies

To preface the discussion of coping strategies, it is helpful to understand the concept of coping resources. Thoits (1995) draws from Pearlin and Schooler (1978) and defines coping resources as "social and personal characteristics upon which people may draw when dealing with stressors" (Thoits 1995:59). Furthermore, "resources…reflect a latent dimension of coping because they define a potential for action, but not action itself" (Gore 1985:266). Finally, drawing from Folkman (1984), the type and efficacy of

the coping strategies an individual utilizes in response to stress is influenced by coping resources (Thoits 1995). Personal coping resources include social support, sense of control/mastery over life (internal and external locus of control) and self-esteem, which Thoits (1995) identified as being most studied by sociologists. Ultimately, coping resources lead to coping strategies.

Coping strategies or processes are a fundamental tenet in conceptualizations of stress. Coping strategies are adaptive in the way they attenuate stress or negative stimuli on the human organism. Drawing from Fleishman's (1984) definition, coping is the "cognitive or behavioral responses that are taken to reduce or eliminate psychological distress or stressful conditions" (Holahan and Moos 1994:217). The study of coping strategies can generally be categorized in two ways: approaching and avoiding stressful situations. As the terms insinuate, *approaching strategies* focus on ways individuals confront stress and *avoidance strategies* focus on ways to disengage and avoid stressful contexts altogether (Holahan and Moos 1994).

Approaching strategies include a range of responses to offset the effects of stress. Problem solving and information seeking are strategies used to actively mitigate stressful situations and reduce the amount of psychological disruption in individuals. Approaching coping strategies are viable for both distinct life event and ongoing chronic stressors. Problem focused coping is an approach strategy that has been correlated with reductions in depression. Other types of strategies are negotiation and optimistic attributions that have been shown to reduce distress in some situations (Holahan and Moos 1994:217).

Avoidance strategies are particularly associated with psychological distress (Holahan and Moos 1994). In this context, psychological distress is defined as a behavioral response to external stimuli (stressors). Denial, withdrawal, ignoring, and avoidance are examples of this type of strategy. Ironically, displays of avoidance strategies may have the opposite effect in certain individuals and may in fact exacerbate distress in certain conditions. For instance, selectively ignoring negative stimuli can have deleterious effects on marriages and family, resulting in more distress.

Coping Responses

Coping responses refer to the strategies an individual uses, either actively or passively, to mitigate the stress processes triggered by an environmental stimulus. Coping responses are categorized as either *adaptive* or *maladaptive*. If a coping response effectively mitigates the enduring psychological and physiological stress response, then it is considered adaptive. If the coping response does not attenuate stress responses and even exacerbates the health condition of the individual negatively, then it is maladaptive (Clark, Anderson, Clark, and Williams 1999). In either case, coping responses are expected to affect the duration and intensity of the stress responses on both the psychological and physiological level.

There is also another distinction between types of coping responses: *general coping responses* and *racism-specific coping responses*. General coping responses refer to, "strategies that are usually used to deal with stressful stimuli-irrespective of nature" (Clark et al. 1999:809). Racism-specific coping responses refer to the cognitive processes and the behaviors used to mitigate the effects of perceived racism, either psychologically or physiologically (Clark et al. 1999:809).

Clark and colleagues (1999) address the processes that begin when an individual perceives an event as racist, noting that a range of psychological and physiological responses may occur. Psychological stress responses are defined by Clark et al. (1999) as feelings of anger, anxiety, fatalism, and frustration. Clark et al.'s (1999) conceptualization of psychological stress is similar to Wheaton's (1994), defined as a generalized response to a problem. According to their biopsychosocial model and other stress literature, a subsequent coping response may be initiated to mitigate psychological stress. Coping responses include anger suppression, verbal outbursts of anger, aggression, and utilization of alcohol, tobacco, or other substances (Clark et al. 1999). In addition, physiological activation may occur to offset the psychological stress. This may include prolonged immune system activation, neurobiological release of stress reactive hormones, and weakened cardiovascular functioning. Based on the perceptual significance of the threat, various health outcomes may occur from the activation of these physiological responses.

A range of health outcomes can occur as a result of stress response. Researchers have established links between stress and depression, diminished immunological responses, infant mortality, and heart disease. The focus of this study will assess the added deleterious effects of the negative health behavior of smoking. Smoking, along with the psychological and physiological responses to racism, can have a confluent and maladaptive effect on the individual and compromise the overall well-being of the person.

In this next section, I present my predictions. Each prediction will be prefaced by a literature review that will conceptualize each factor and justify its use in my

dissertation. I examine the effects of perceived discrimination (a basic cause), social support, and locus of control (both surface causes) on psychological distress, and then conclude by discussing the effect of psychological distress on smoking behavior. My overall model suggests that psychological distress mediates the effects of perceived discrimination, social support, and locus of control on smoking behavior (see Figure 2).

Predictions

Perceived Discrimination

Perceived racism is the subjective experience of racism, including but also not limited to circumstances that are objectively assessed as racist (Clark et al 1999:808). Drawing from Lazarus and Folkman's (1984) research on stress processes, appraisal processes involve "both the individual's evaluation of the seriousness of an event and his or her coping responses that determine whether a psychological stress response will ensue" (809). According to this perspective, it is an individual's interpretation of an event (as being discriminatory) that leads to a psychological and/or physiological activation (even if others do not make the same assessment).[2] When racism is perceived, particularly when accumulated over time, people may turn to coping responses (McNeily et al. 1996:155).

In addition, Clark et al. (1999) propose that the perception of an environmental stimulus as racist results in psychological and physiological stress responses, influenced by physical, sociodemographic, psychological, and behavioral factors, and coping

[2] Specifically, differences in perception of racism are related to three types of encounters. The first type of encounter is where racism is attributed as a cause for a particular outcome. The second type of encounter refers to the influence of a different stressor other than racism, such as a gender-specific stressor such as family demands. The third encounter is actually a non-event characterized by the absence of any perception of racism or other stressor. In situations where racism is not perceived to occur (as well as any other stressor) no psychological or physiological stress responses are expected to occur since there are no triggers to initiate any type of response.

responses. Discrimination within a highly segregated geographic region over a prolonged period can act as a chronic stressor. For example, a negative interpersonal interaction within a retail environment with a discriminatory customer service agent is an acute source of stress. Based on an individual's attributional orientation, explanations of one's experience may be attributed to external influences that are outside of a person's control or may be perceived as internally driven which allude to an individual capacity to influence outcomes. Importantly, psychological and physiological stress responses are related to an individual's perception of an event, despite the objective nature of the incident. Over time, the stress responses are posited to influence health outcomes (Clark et al. 1999:806). Specifically, perceived racism has an effect on stress and the body, and it may stimulate unhealthy behaviors in reaction to racism. This may aggravate already high incidences of risky behavior, such as smoking, which has well-documented linkages to adverse effects on physical health.

The biopsychosocial model proposed by Clark and colleagues (1999) provide an appropriate theoretical framework that explains how sociodemographic, psychological, and behavioral factors can all interplay as a function of an individual's interpretive filter and lead to a perceptive assessment of one's environment and experience as being discriminatory. It is then posited that these myriad perceptions are what can lead to psychological and physiological activation and ultimately lead to stress within the individual. This theoretical lens is mirrored by Harrell's (2000) work in the utilization of her theoretical framework that explicates the "unique person-environment transactions involving race" (44) that ultimately lead to stress within the individual. Harrell's

framework makes an added contribution to the racism and stress dynamic through her categorization of multiple forms of racism and how it specifically translates into stress.

Whether the source of stress may originate from endemic discriminatory structural influences, as outlined in Williams and Sternthal's (2010) research, or micro-level interpersonal experiences of a discriminatory nature, many scholars attribute these person-environment interactions as sources of stress unique to individuals of color. Harrell (2000) made note that it is not only the experience of discrimination that can lead to stress, but also the ethereal and intangible nature and thereof validation of discrimination itself that causes stress. The process of interpreting and contextualizing discrimination is stress-inducing in and of itself. Internalization of racism can lead to an indoctrination of negative ideologies of inferiority from a dominant society and also lead to the adverse effects on health through the mechanism of stress (Williams and Mohammed 2009).

Based on these perspectives, I expect that perceptions of racism will be positively related to level of stress. In addition, I argue that this relationship should be similar for black men and women. Specifically, I predict:

Prediction 1: *Perceived discrimination will be positively associated with perceived level of psychological distress.*

Social Support from Family and Friends

For individuals exposed to stress, social support is viewed as a tool that serves as a relative buffer from the pains of life, both large and small. Social support is considered a coping resource and is the most frequently studied psychosocial resource (Thoits 1995). Metaphorically, social support is viewed as a "social 'fund' from which people may draw

when handling stressors" (Thoits 1995:64). Social support often refers to "the functions performed for the individual by significant others, such as family members, friends, coworkers…and can provide instrumental, informational, and/or emotional assistance" (Thoits 1995:64, Turner 1999). These support functions are highly correlated but can be distilled into the distinct categories of support perceived and received (Thoits 1995). Perceived support has been found to have a stronger influence on mental health than received support (Thoits 1995: 64; Dunkel-Schetter and Bennett 1990; Wethington and Kessler; Turner 1999). Thoits (1995) concludes that, in relation to life events and chronic strain, perceived emotional support is directly associated with better physical and mental health (Thoits 1995:64). Also, intimate relationships (or lack thereof) are central to a measure of social support (Thoits 1995). Having someone to confide in significantly reduces, "the effects of stress experiences on physical and psychological outcomes" (Thoits 1995:64).[3]

Perceived social support is closely associated with adjustment and health outcomes in individuals (Sarason et al. 1994). An individual's report of the availability of social support is comprised of the two elements of objective properties of supportive interactions and the respondent's interpretation of the interactions (Sarason et al. 1994).

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[3] In addition, social support processes also involve interpersonal interconnectedness of the members within a social network, including the density and size of the network (Sarason et al. 1994: 153). The structural aspects of a social network contribute to variations in patterns of social interaction, which ultimately, create different types of support networks. These differential patterns are especially contingent on the saliency and the type of individuals that comprise the network, for instance, family, spouses, friends, and other types of interpersonal relationships (Sarason et al. 1994: 153). A key point drawn from this approach is that, "certain types of networks are associated with poor outcomes under some circumstances" (Sarason et al. 1994: 153). Functions of support refer to, "those aspects of social support that are beneficial to individuals who are experiencing specific types of stressful events" (Sarason et al. 1994: 154/ quoting Cutrona and Russel, 1987). The buffering aspects of social support serve to mitigate and insulate vulnerable individuals from stress. Cohen and Willis (1985) suggested that this protective facility is a "function of the match between the particular need engendered by the stressor and the type of support given" (Sarason et al 1994: 154). According to this approach, the emphasis of matching need due to stressor and type of support garnered may help further validate the utility of social support.

Positive outcomes attributed to social support come more from a sense of value and nurturing from social networks, more so than the actual means of support given. Cobb (1976) theorized that the role of social support is to "convey information to the individual that others care about and value him or her" (Sarason et al. 1994:155). Further, Cassel (1976) noted that, "conveying caring and positive regard to the recipient is more responsible for positive outcomes than is any specific behavior" (Sarason et al. 1994:155). These positive effects that result from social support seem to work from a function of sensing the availability of support that gird any behavioral and active support that may be also given.

Also, Thoits (2011) posits that the size and quality of individual's social networks and ties can have an intervening effect on health. Through social ties, comprised of primary and secondary group members, social support can have varying protective or inhibiting effects from harmful stressors (Thoits 2011). Social ties are defined as "connections to and contacts with other people through membership in primary and secondary groups" (Thoits 2011:146). Primary groups are usually "small in size, informal, intimate, and enduring," for instance, family, friends, and significant others can all be representatives of a primary group (Thoits 2011:146). Conversely, secondary groups are larger and tend to reflect interactions that are more "formal (guided by rules, regulations, and hierarchal positions)," where "knowledge about one another is less personal, and members may enter and exit such groups at their or others' discretion" (Thoits 2011:146). This may be exemplified by work, religious or other types of organizations. Social support, which refers to "the functions performed for the individual by significant others" can reflect either primary or secondary group members that offer

"emotional, informational, and instrumental assistance" as needed by an individual (Thoits 2011:146).

When either an acute negative event or chronic strain overtaxes an individual's ability to cope, then the stress-buffering process is enacted. Thoits (2011) suggests that the efficacy of social support is differentially contingent on who is giving the support and the relationship between the support- giver and receiver. In other words, the social ties within one's social network, as comprised of primary group members (family, friends, significant others) or secondary group members (acquaintances, co-members of similar-experience support groups- e.g. alcoholic anonymous), can have varying influences on an individual receiving social support based on saliency of the relationship and past experiences. The stress buffering process works through social support in the form of "coping assistance," in which "supports advise or implement problem-focused and emotion-focused coping strategies that they would use themselves if they are facing the same stressor" (152). Furthermore, Thoits (2011) states that coping assistance strategies buffer stress due to the fact they "quite literally lessen situational demands and/or the person's emotional reactions to those demands, reducing the physical and psychological consequences of the stressor directly" (152). Via social psychological mechanisms such as self-esteem, mattering, and belonging to a significant social group, I presuppose that social support can have an inhibiting effect on stress; as a result of reducing stress, this will also reduce the likelihood of using smoking as a coping strategy. The quality and quantity of support resources available to an individual is expected to mitigate the effects of stress on an individual to varying degrees.

Finally, some research on perceived social support shows that women report more perceived support in relation to men, whereas other studies find no difference in perceptions (Pearlin et al. 1981; Ross and Mirowsky 1989; Turner and Marino 1994; Turner and Noh 1988; Vaux 1988). Thoits (1995) notes Belle's (1987) study that finds that men engage in more extensive networks but women input more investment and derive more intimacy in theirs (Thoits 1995: 65). Also, Romano et al.'s (1991) investigation, on whether individuals in urban environments that experienced more daily hassles would be more likely to smoke than those who experienced fewer daily hassles, showed a significant effect for women. For women, those with weak social networks were more likely to smoke than those with strong networks; however, this relationship did not hold for men. An examination of interaction effects between social support and hassles did not prove to be significant (Romano et al. 1991).

Interestingly, some research supports the claim that social support can serve as a buffer to psychosocial stress as evidenced by Berkman and Syme (1998) who significantly identified differential mortality rates between socially connected versus isolated individuals. Warren's (1997) research, on depression in black women, however, notes that the protective effects of social support may meet a threshold and create stress when "the reciprocal expectations and demands of social networks exceed capacity" (Jackson 2007:3). Gender may play a role in the availability and use of certain types of social support resources. Utilizing family and friend measures to assess the different types of social support one can receive, I examine the following prediction:

Prediction 2: *Perceived social support from family and friends will be negatively associated with perceived level of psychological distress. This negative relationship will be stronger for women than men.*

Locus of Control

Although it is generally accepted that social support has some beneficial effects for countering stress, the specific mechanisms used to acquire this effect are not always clear. One possible mechanism, an individual-level psychological orientation, which contributes to the protective benefits of social support, is *locus of control*. Locus of control is referred to as, "the extent that individuals believe that events in their lives are under their own control (an internal orientation) or are determined by forces outside themselves, such as luck, fate, or chance (an external orientation)" (Krause and Stryker 1984:783). The relationship between locus of control and (life) stress is conceptually illustrated in situations where individuals, "who define events in their lives as outside their control will be less able to cope effectively with stress, and therefore, more likely to experience physical and psychological distress than persons with internal locus of controls beliefs" (Krause and Stryker 1984:783). Individuals with an internal locus of control are expected to deliberately seek, enact, and perpetuate social relations during times of stress (Fusilier et al. 1987). Conversely, individuals with an external locus of control are passive and less likely to utilize social contacts effectively, thereby not maximizing social networks for support (Fusilier et al. 1987). As Lefcourt et al. (1984) suggests, "persons with an internal locus of control derive greater benefits from social support than those that exhibit a more external orientation" (p. 378).

For example, Sandler and Lakey (1982) studied college students to investigate whether social support buffered individuals from psychological strain created from negative life events or stress (Fusilier et al. 1987). The results showed that social support, "…buffered the effects of stress on anxiety and depression for internals but not externals…internals with a high level of support exhibited less of an increase in strains than those with a low level of support as the number of life events increased" (Fusilier et al. 1987:518). Lefcourt et al. (1984) followed-up this study with more specificity by including locus of control measures that were more pertinent for college students via a three-study series (Fusilier et al. 1987) and concluded that social support has a buffer effect for individuals with internal locus of control but not for those with external orientations (Fusilier et al. 1987:518; Lefcourt et al. 1984).

In regard to smoking behavior, Romano et al. (1991) conducted a study on smoking, social support, and hassles in the black community and found a marginal association between health-specific locus of control and smoking in their multivariate models (Romano et al., 1991:1419). Health-specific locus of control refers to an individual's perception of "self-control over health" and is assessed using a six-point Likert-type scale (Romano et al., 1991:1416). They noted that "individuals that displayed a strong sense of control over health determinant tended to be less likely to smoke" (Romano et al, 1991:1419). Although the researchers acknowledged their measure may not have adequately captured the concept of locus of control, the statistical association warranted further investigation to expound the relationship.

Drawing from Bandura (2001), Thoits notes that the "more frequently one's efforts result in adequate to superior task completion, the more strongly one should

believe that one has control over what happens in one's life in general…a global sense of control or mastery may derive from self-efficacy beliefs that emerge in specific domains of endeavors…" (Thoits 2011:149). Researchers have associated locus (sense) of control or mastery, with increased abilities and confidence to take on new challenges and withstand major stressors (Thoits 2011:149; Mirowsky and Ross 2003; Taylor and Stanton 2007; Turner and Lloyd 1999; Turner and Roszell 1994) as well as reduced reactivity to physiological stressors (Taylor et al. 2003; Taylor and Stanton 2007). A strong sense of locus of control should translate into an inhibiting factor to stress, and given the relationship between perceived locus of control and the efficacy of social support, I predict the following hypotheses:

Prediction 3a: *The higher the locus of control, the lower the perceived level of psychological distress.*

Prediction 3b: *The negative relationship between perceived social support and perceived level of psychological distress will be stronger for individuals with a high level of locus of control (i.e. more internal).*

One's capacity to cope with stress is determined by resources and personal coping responses. Negative emotional and physiological outcomes can occur in situations where multiple stressors exceed an individual's capacity to cope. Smoking behavior is one method that people may adopt to cope with stress; therefore, perceived psychological distress should be directly related to smoking behavior.

Nicotine intake serves as a self-medication process to reduce anxiety, although social, psychological, and biological mechanisms still need to be assessed to demarcate clear relationships. The association between gender, stress, and smoking is unclear due to

multiple factors and contexts that contribute to a wide array of research outcomes. Todd (2004) found that for men and women in naturalistic settings, higher numbers of negative events and perceived stress lead to more smoking and urges to smoke for men than women (Todd 2004). Todd acknowledged that cross-sectional surveys and laboratory methods that attempt to link gender differences in stress-smoking relationships provide mixed results and varying degrees of explanations for any causative outcomes. The assessment of stressors and smoking behavior within a naturalistic setting was conducted using an initial telephone interview, a programmable watch to monitor daily activity, and the completion of daily data sheets that logged each individual's experience Ultimately, Todd found that negative vents and perceived stress were indeed associated with higher urges and participation in smoking behavior, and that the stress and smoking relationship was stronger for men than for women (Todd 2004).

Therefore, based on the theoretical expectation that the stress process can lead to psychological distress (a generalized behavioral response to stress) and result in the negative health behavior of smoking as a coping response, I predict the following:

Prediction 4: *Perceived level of psychological distress will be positively associated with smoking behavior.*

As seen in Figure 1, and based on the first four predictions, experience of perceived discrimination is expected to increase levels of stress and lead to the negative coping behavior of smoking. Conversely, social support resources should alleviate feelings of stress within the individual to mitigate the need to engage in the behavior of smoking. As well, locus of control should reduce stress within the individual, leading to less need to adopt the behavior of smoking. According to the stress models provided by

Wheaton (1999) and Harrell (2000), generalized and race-specific stressors should lead to stress which, in turn, engender some type of coping response. Therefore, I offer:

Prediction 5: *The effects of perceived discrimination, social support, and locus of control on smoking behavior will be mediated by psychological distress.*

It may be that these variables have direct effects on smoking behavior, regardless of the level of psychological distress. Therefore, I will also test for the direct effects of the independent variables on smoking behavior. Perceived discrimination should be positively related to smoking behavior whereas social support and locus of control should be negatively related.

CHAPTER 4: METHODOLOGY

Description of the Data Set

In order to test my predictions, I use data from the Collaborative Psychiatric Epidemiology surveys (CPES). This collection consists of three nationally representative surveys: the National Comorbidity Survey Replication (NCS-R), the National Survey of American Life (NSAL), and the National Latino and Asian American Study (NLAAS). One of the primary objectives of the CPES was to collect the prevalence of, and impairments associated with, mental disorders along a representative continuum of majority and minority adult populations in the United States. Secondary goals were to collect and provide information on the usage of language, support systems, ethnic disparities, discrimination, and assimilation as it relates to mental disorders and ultimately link various disorders to social and cultural antecedents and issues. The CPES project was sponsored by the National Institutes of Mental Health (NIMH) and data

collection was conducted by Survey Research Center (SRC) of the Institute of Social Research at the University of Michigan between early 2001 to late 2003.

I use the National Survey of American Life (NSAL) to test my predictions. It is a four-stage national area probability sample survey that measures multiple exacerbating (risk) and inhibitive (protective) factors among African American, Afro-Caribbean, and white populations in the United States. Data were collected through personal interview methods in the homes of the respondents via laptop computers between early 2001 and spring 2003. Also, approximately 14 percent of respondent interviews were conducted by telephone, either partially or completely. The NSAL originally had an N of 6,199 adults: African American respondents (n=3,570), Afro-Caribbean (1,623), and non-Hispanic white (n=1,006). After deletion of duplicate responses and a small subset of whites (n=115) that represented less than 10 percent of African American density in the neighborhood, the final number of respondents were African American (n=3,570), Afro-Caribbean (n=1,621), and non-Hispanic white (n=891).

In my dissertation I utilize the National Survey of American Life to analyze the effects of multiple factors on smoking of African American men and women. Specifically, in the NSAL, I use a subset of the African American sample that answered questions pertaining to my variables. I created a subsample of black men and women smokers and non-smokers integrated into one aggregate sample with an N=1431. This group of smokers and non-smokers consisted of 622 black men and 809 black women. From this sample I created another subset of all black smokers with an N=931. My black smoker sample consisted of 397 black men and 534 black women.

Description of the Measures

Dependent Variables

Two dependent variables are used to measure smoking behavior. The first dependent variable determined the current smoking status of the respondent. The second dependent variable served as a follow-up question for respondents that identify themselves as smokers and is used to gauge intensity of smoking behavior. The first question asks: (1) *"Do you currently smoke?(yes or no)"* ; The second question asks: *"How many cigarettes per day do you smoke?"* The response category is *"Please enter the number."* This allows for a specific numerical appraisal of cigarettes given by the respondent.

Independent Variables

Perceived Discrimination

For perceived discrimination, in the NSAL dataset, there is a discrimination section that includes a list of discriminatory experiences that the respondent may have encountered. The question is phrased as follows: "*In your day-to-day life how often have any of the following things happened to you?"* There are ten experiences: (1) treated with less courtesy than others, (2) treated with less respect than others, (3) receive poorer restaurant service than others, (4) frequency people act like you are not smart, (5) people act afraid of you, (6) people act like you are dishonest, (7) people act better than you, (8) frequency called names/insulted, (9) threatened/harassed, and (10) frequency followed in stores. The follow-up question assessed how often the experience(s) occurs. The response options are: 1) almost everyday, 2) at least once a week, 3) a few times a month, 4) a few times a year, 5) less than once a year, and 6) never (if volunteered). I

reverse coded this measure for the purpose of "total scale scoring" (Fogel and Israel 2009: 278), where the higher score indicates higher levels of perceived discrimination.

I also created a perceived discrimination scale that included selected items from the NSAL perceived discrimination measure to include in my analysis. I use confirmatory factor analysis with Varimax rotation, to see how these 10 items load for black men and women separately.

I found that for black men smokers and non-smokers, the perceived discrimination items courtesy (.83), respect (.84), poor service (.76), smart (.76), afraid (.67), dishonest (.64), better (.65), and followed in stores (.50) loaded together on the first component. Insulted (.83) and threatened (.85) loaded on the second component. The ten item scale for this group has a reliability Cronbach of α=.90. Similarly, in just the smoker group, for black men smokers, I observed a similar pattern where courtesy (.81), respect (.84), poor service (.75), smart (.77), afraid (.71), dishonest (.69), better (.70), and followed in stores (.59) loaded together on the first component and insulted (.87) and threatened (.86) loaded on the second component. Similarly, for the ten item scale, α=.90.

The items for perceived discrimination loaded differently for black women. For black women smokers and non-smokers, combined, the items of courtesy (.81), respect (.86), poor service (.76), smart (.72), and better (.61) loaded on the first component whereas afraid (.72), dishonest (.66), insulted (.68), threatened (.73), and followed in stores (.68) loaded together on the second component. The ten item scale for this group has an α=.88. This pattern is maintained for black women smokers where courtesy (.81), respect (.86), poor service (.78), smart (.75), and better (.58) loaded together for the first

component. The second component consisted of afraid (.73), dishonest (.64), insulted (.69), threatened (.72), and stores (.66). Again, the reliability coefficient for the ten-item scale is α=.88.

Six perceived discrimination items were identified through factor analysis to load together on one factor for black men and women combined (α=.80 for both the combined smoker and non-smoker group as well as for all black smokers). For black men and women smokers and non-smokers combined, smart (.75), better (.75), afraid (.73), followed in stores (.64), insulted (.72), and threatened (.69) loaded together. This pattern is sustained for black smokers where smart (.73), better (.77), afraid (.72), followed in stores (.65), insulted (.73), and threatened (.69) loaded together (α=.80).

As a result, I used a perceived discrimination scale that includes the following six items: (1) frequency people act like you are not smart, (2) people act better than you, (3) people act afraid of you, (4) frequency called names/insulted, (5) frequently threatened/harassed, and (6) followed in stores. All the items have been reverse coded to reflect higher scores of more discrimination. The items were then combined and recoded as the scale measure "PerceivedScale6."

Social Support from Family and Friends

I use the following measures of perceived social support received from family and friends as well as given to family and friends. The first measure looks at family support: *"Now, I'd like to ask you some questions about your family relationships (and about your friends). How often do people in your family – including children, grandparents, aunts, uncles, in-laws and so on – help you out?"* The response categories are: 1="Very often", 2="Fairly often", 3="Not too often", 4="Never", 6="Never needed help (if

volunteered)," and 7="I have no family (if volunteered)". I reverse coded this measure for total scoring purposes: a higher score corresponds to higher levels of social support received by the respondent from family. To measure the extent the respondent helps family members, respondents were asked: *"How often do you help out people in your family – including children, grandparents, aunts, uncles, in-laws and so on?"* The response categories are: 1="Very often", 2="Fairly often", 3="Not too often", 4="Never", and 6="Never needed help (if volunteered)." I reversed coded this measure where: a higher score indicates more social support given to family by the respondent.

The measure of perceived support from friends is: *"How often do your friends help you out?"* The response categories are: 1="Very often", 2="Fairly often", 3="Not too often", 4="Never", and 6="Never needed help (if volunteered)". To measure support given to friends, they were asked: *"How often do you help out your friends?"* The response categories are: 1="Very often", 2="Fairly often", 3="Not too often", 4="Never", and 6="Never needed help (if volunteered)". Again, I reverse coded these measures for total scoring purposes: a higher score on these measures indicates more social support received and given to friends by the respondent, respectively.[4]

Locus of Control

This domain evaluates the psychological resources available to the individual and attempts to assess the amount of agency the individual perceives in his/her life. I use

[4] I also analyzed two church variables to assess the level of social support received and given to church members of the respondent. The measure of perceived support from church people is: How often do people in your church (place of worship) help you out?" The response categories are: 1="Very Often", 2="Fairly often", 3="Not too often", 4="Never", and 6="Never needed help (if volunteered)". To measure support given to church people, they were asked: "How often do you help out people in your church (place of worship)? The response categories are: 1="Very often", 2="Fairly often", 3="Not too often", 4="Never", and 6="Never needed help (if volunteered)". I reverse coded these measures: a higher score indicates more social support received and given to church people by the respondent, respectively. I found no significant effects on depression and smoking behavior for my sample of smokers and non-smokers combined, and my sample of all black smokers

these questions to measure perceived agency: (1) "*The future seems hopeless to me and I can't believe that things are changing for the better;* and (2) *"I often feel helpless in dealing with the problems of life".* The response categories are: 1="Strongly agree", 2="Somewhat agree", 3="Somewhat disagree", and 4="Strongly disagree." As a result of reverse coding, a higher score indicates a stronger agreement of feelings of hopelessness and helplessness, respectively. Helplessness and hopelessness are the closest measures available in the NSAL that capture the conceptualization of locus of control. They are not ideal, but they do allude to a lack of internal control. Helplessness, in particular, likely taps into feelings that life events are not within the individual's control. Although these are not ideal measures of locus of control, they are the best measures available.

Mediating Variable

Similar to Ellison, Boardman, Williams, and Jackson (2001), I use an unweighted six-item scale that measures psychological distress (Ellison et al. 2001: 225) as found in the NSAL. These six items are derived from the depression subscale of the Brief Symptom Inventory and are found in the "30 Day Symptoms" section of the NSAL (Sellers, Caldwell, Schmeelk-Cone, and Zimmerman 2003). For my analysis, I combined the six depression measures into one scale. The scale consists of the following questions: (1) "In the past 30 days, about how often did you feel so sad nothing could cheer you up."; (2) "(How often did you) feel nervous?"; (3) "(How often did you) feel restless or fidgety?"; (4) "(How often did you) feel hopeless?"; (5) "(How often did you) feel that everything was an effort?"; and (6) "(How often did you) feel worthless?" The response options for all questions are: 1="all," 2="most," 3="some," 4="a little," and 5="none." Boulet and Boss (1991) report the alpha coefficient for the depression subscale as α=.89

(p. 434). In my study, the alpha coefficient for the depression scale is α=.82. As a result of reverse coding, a higher score reflects higher levels of experiences of depression. Factor analysis also showed that all items loaded adequately on one factor for the group of men and women that identified themselves as smokers and non-smokers and for the group of all black smokers in another. For the group of smokers and non-smokers, the depression factors loaded as follows: Cheer (.79), Nervous (.78), Restless (.78), Hopeless (.82), Effort (.56), Worthless (.79) (α=.82). For the group of all black smokers, the depression factors loaded as follows: Cheer (.80), Nervous (.78), Restless (.79), Hopeless (.83), Effort (.54), Worthless (.80) (α=.83).

To determine whether or not my measures of depression, helplessness, and hopelessness are highly correlated, I analyzed the correlations between these variables. For the population of black smokers and non-smokers the correlations are: (1) depression and helplessness (r=.404); (2) depression and hopelessness (r=.385); and (3) helplessness and hopelessness (r=.410). For the population of black smokers only: (1) depression and helplessness (r=.404); (2) depression and hopelessness (r=.371); and (3) helplessness and hopelessness (r=.412). Although these variables are correlated, they are not highly correlated, and therefore I used all these variables in the analysis.

Control Variables

I control for a number of variables in my analyses that may affect psychological distress and smoking behavior. I control for socioeconomic status, given that previous literature shows a negative relationship between SES and smoking behavior. Specifically, I control for educational level, income, and employment status (Escobeda and Peddicord 1996; Schoenborn, Vickerie, and Barnes 2003).

Some scholars show that education may be more important than other SES factors. For example, Wagenknecht et al. (1990), in a longitudinal epidemiological study from the CARDIA study, reiterated the 1989 Surgeon General report identifying "education as the best single sociodemographic predictor of smoking" (159) even when occupation and type of job were considered. Overall smoking prevalence was two times higher for individuals with less than a high-school education versus those with more than a high-school education. Notably, however, these smoking patterns did not hold for black women (Wagenknecht 1990:163).

In addition, low educational attainment may diminish the efficacy of antismoking campaigns that rely on printed materials and target educated and literate Americans (Escobedo and Peddicord 1996:234). Among the educated, negative social pressure may be a motivating factor to limit the practice and/or quit smoking, in order to avoid social stigma. This may be a function of negative reactions of colleagues and peers who are more likely to be aware of the health dangers posed by smoking and its direct effect on mortality and morbidity (Escobedo and Peddicord 1996:234). Perpetuation of a proven dangerous health behavior may be looked upon unfavorably, leading to a reduction in its use among the educated.

For my dissertation, I used a similar categorization framework utilized by Broman, Neighbors, Delva, Torres, and Jackson (2008); Galea, Ahern, Nandi, Tracy, Beard, and Vlahov (2007); and Romano, Bloom, and Syme (1991) to inform my categorization of the control measures of income, education, and work status. Specifically, Broman et al.'s (2008) categorization scheme was particularly helpful due to the fact they used the same data set (NSAL) in their study as I do here, which allowed me

to adopt a very similar category approach and assured it was appropriate for my population of interest.

Education measures the highest grade completed by the respondent. The answer options are arranged in four categories: "1" indicates 0-11 years of education; "2" indicates 12 years of education, "3" indicates 13-15 years of education; and "4" indicates greater than or equal to 16 years of education. The various indicators were recoded into three dummy variables that resulted in the categories "education (0-11)", "education (12-15)", and "education (16+)". The category "education (16+) served as the referent for this group.

Family income was calculated according to an income imputation algorithm in the NSAL (n=6082). Using this imputed method allowed for the household income to be determined and compared to poverty level as a ratio. Income responses were collected and treated as a continuous variable that contains over 100 discrete values and is top-coded at $200,000. In my analysis, I recoded this continuous measure into discreet categorical variables in segments of income less than $10,000, between $10,000-30,000, and greater than $30,000. I then created three dummy variables in the categories of "income < $10,000", "income $10,000-30,000" and "income>30,000". The category of "income>30,000" served as the referent for this variable.

Employment measures the work status of the respondent. The item is phrased: *"Work Status 3 categories,"* and the response options are: 1="employed", 2="unemployed", 3="not in labor force." In order to systematize the variable for analysis, I created a dummy variables that resulted in the categories of "employed",

"unemployed", and "not in the labor force". The category of "employed" served as the referent for this variable.

In addition to SES, I also used several other individual level variables that may be related to psychological distress and/or smoking. Marital status is used as a control variable and the response options are: 1="married/cohabiting", 2="divorced/separated/widowed", 3="never married". Age measures the respondents' age in years. I controlled for age because smoking prevalence is inversely related to age (Schoenborn et al. 2003). The result from the 2002 National Health Statistic Survey (NHIS) showed an inverse relationship between smoking prevalence and age from 28.5% for respondents between the ages of 18-24 down to 9.3% for individuals aged 65 and older (MMWR 2004). The confluence of increased knowledge, life experience, and other physical debilitation resultant of age may influence the lack of motivation to smoke at older ages. In order to assess any potential issues with curvilinearity, I included an additional squared measure for age (AgeSquared) in the analysis. Number of children in the household was used as a control, and has five response categories listed as follows: 0="0", 1="1", 2="2", 3="3", 4="4 or more."

In addition, I also controlled for region and neighborhood context. Stressors have been associated with differential outcomes in social groups residing in geographically different environments. For example, Mid-Western blacks are exposed to different socio-cultural stressors than Western or Southern blacks and may adopt multiple forms of coping strategies that are adaptive to their circumstance (Fernander et al. 2005:497). For instance, stressors stemming from employment stability concerns may originate from industrial job emigration in the Mid-West versus intensified immigration issues and

competition for limited positions in the West or South regions. These differential outcomes may hold true for a nationally representative data set. Therefore I controlled for region and the response options were 1=”northeast”, 2=”Midwest”, 3=”south”, and 4=”west”.

In regard to neighborhood context, neighborhoods with high crime rates and drug use may produce more psychological distress than neighborhoods with low crime rates and low drug use (Boardman, Finch, Ellison, Williams, and Jackson 2001). The first measure is about crime in the neighborhood and was asked as follows: *“How often are there problems with muggings, burglaries, assaults or anything else like that in your neighborhood?”* The response categories are 1=“very often”, 2=“fairly often”, 3=”not too often”, 4=”hardly ever” and 5=”never”. A second measure looks at problems with drugs in the neighborhood: *“How much of a problem is the selling and use of drugs in your neighborhood?”* The response categories are: 1=”very serious”, 2=”fairly serious”, 3=”not too serious”, 4=”not serious at all.” These measures were reverse coded where higher scores reflect increased incidences of crime and drugs in the neighborhood, respectively.

Finally, I controlled for other variables that are related to psychological distress. Family demands and difficulty paying bills are likely to be positively related to distress; church attendance may be negatively related to distress and smoking behavior (Broman 1995; Almeida and Kessler 1998; Whooley 2002). Family demands measures the frequency family makes too many demands of the respondent. The question is phrased as: “*How often do they make too many demands of you?”* The response options are: 1=“very often”, 2=“fairly often”, 3=“not too often”, and 4=“never.” Difficulty paying

bills was measured by the following question: *"How difficult is it for [you/your family] to meet the monthly payments on your [family's)] bills?"* The response options are: 1="extremely difficult", 2="very difficult", 3= "somewhat difficult", 4="not very difficult", 5="not at all difficult." Finally, church attendance is measured using the following question: *"How often do you usually attend religious services?"* The response options are: 1= "nearly everyday – 4 or more times a week", 2= "at least once a week – 1 to 3 times", 3="a few times a month – 1 to 3 times", 4="a few times a year" and 5="less than once a year". All three of these measures were reverse coded. Higher scores represent higher incidences of family demands, more difficulty paying bills, and more frequency of church attendance, respectively.

For both my OLS and LOGIT analyses, I weighted the data to correct for the unequal probabilities of selection, nonresponse, and population representation across different sociodemographic characteristics (Broman et al. 2008). I also adjusted the standard errors to account for the NSAL's complex research design. A complex research design can result in larger standard errors in comparison to simple random sample analyses, therefore, large differences may not be statistically significant (Neighbors et al. 2008). These procedures were recommended in order to achieve valid tests of statistical significance.

In the next chapter, I review the results of my analysis. I provide a review of the descriptive statistics of my black smoker and non-smoker group, combined, as well as the all smoker group. I then review the direct effects of my theoretical variables on smoking behavior and then on depression. The significant effects from each of my statistical tables are also explained in this chapter.

Chapter 5: Results

Descriptive Statistics

In the dataset that includes both smokers and non-smokers, there are 622 black men (43.5%) and 809 black women (56.5%). As seen in Table 1A and 1B, the average age is 46, with a range of 18-90 years. The average respondent has at least a high school education, with some college. Specifically, 31% have eleven or less years of education, 58% have high and some college, and 11% have an undergraduate degree or above. All levels of income are represented and satisfactorily distributed from ranges below $10,000 (18%), above $30,000 (42.5%) and 40% of respondents report income levels between $10,000 and $30,000, figuring to an average of $29,821.33. In terms of employment status, 63% of respondents are employed, 11% are unemployed, and 25% are not in the labor force. Marriage status shows that 44% of respondents are married, 32% are divorced, and 24% have never been married. The majority of households do not have children living in them (71%), whereas 15% have one child, 10% have two children, 3% have three children, and only 1.7% has four or more living in the home.

The means and standard deviations for the control and theoretical variables are reported in Tables 1A and 1B. The majority of respondents lived in the south (51%), followed by the Midwest (20.5%), northeast (18%), and the west (10%). In terms of smokers and non-smokers, 65% reported themselves as being current smokers in comparison to 35% that designated themselves as non-smokers.

Tables 2A and 2B represent all the black male and female smokers included in the analysis: 397 black men (43%) and 534 black women (57%). The average age of black

smokers is 43 years, with the range of 18-90 years, and an average household income of $26,748.79 reported by respondents.

More specifically, 33% have eleven or less years of education, 58% have high and some college, and 9% have an undergraduate degree or above. Again, all levels of income are represented and satisfactorily distributed from ranges below $10,000 (21%), above $30,000 (38%) and 40.5% of respondents report income levels between $10,000 and $30,000, figuring to an average of $26,748.79. Regarding employment status, 65% of respondents are employed, 14% are unemployed, and 21% are not in the labor force. Marriage status shows that 42% of respondents are married, 30% are divorced, and 29% have never been married. Once again, the majority of households do not have children living in them (67%), in comparison to 17% that have one child, 11% that have two children, 3% with three children, and 2% that has four or more children living in the home.

The means and standard deviations for the control and theoretical variables relating to black smokers are reported in Table 2A and 2B. The regional distribution shows that 52% of the respondents lives in the south, 22% lives in the midwest, 16.5% in the northeast, 10% lives in the west. The average number of cigarettes smoked per day was approximately 9.29.

Direct Effects of Perceived Discrimination, Social Support, and Locus of Control on Smoking Behavior

Table 3 shows results from a multi-level logistic regression analysis for men and women non-smokers and smoker groups combined. The first model shows the results of black men and women combined, designated as the "All Group." The second and third

models represent the subgroups of black men and black women separated, respectively. These models show the direct effects of the theoretical variables of interest in my dissertation (i.e. perceived discrimination, social support, and locus of control) on whether or not a respondent currently smokes.

As seen in Table 3, the All-Group model shows that perceived discrimination has a positive effect on smoking, indicating that perceived discrimination increases the likelihood to currently smoke cigarettes. In addition, the interaction between gender and perceived discrimination is significant, indicating a gender difference in the effect of perceived discrimination on smoking behavior. For black men, an increase in perception of discrimination is positively and significantly related to likelihood of smoking. For black women, however, perceived discrimination has a negative and marginally significant relationship to the likelihood of smoking. As perceived discrimination increases, the likelihood of smoking significantly increases for black men, yet, the likelihood of smoking decreases for black women.

None of the social support, helplessness, or hopelessness variables significantly affects the likelihood of smoking in the all-group model. In the black women only model, however, helping their family out significantly increases the likelihood that they will smoke to a marginal degree. A marginally significant and negative effect on smoking, however, occurs when family helps them out.

In regard to the control variables, church attendance has a negative and significant effect on the likelihood of smoking for the all-group, and for black women only. Also, having an income level of less than $10,000 positively and significantly increases the likelihood of smoking for the all-group and for men and women, separately.

Unemployment, compared to employment, also has a significantly positive effect on the likelihood of smoking for black women.

Table 4 shows the direct effects of my theoretical variables on how many cigarettes a respondent smokes once classified as a smoker. Once again, controls are in place to account for the variables documented to influence smoking behavior. The three models represent all black smokers combined, black men, and black women, respectively. I found a significant and positive effect of providing support for family on the number of cigarettes smoked per day (β=1.141; $p \leq .01$). The rest of my theoretical variables of perceived discrimination, social support, helplessness, and hopelessness do not significantly affect the amount of cigarette smoking for black men or women smokers, either separated or within the all-group model.

Direct Effects of Perceived Discrimination, Social Support, Helplessness, and Hopelessness on Depression

In my analysis, depression serves as a proxy for distress which is the behavioral expression of stress. Table 5 shows OLS results for the effects of perceived discrimination, social support, and locus of control influence depression for black men and women non-smokers and smokers, controlling for a variety of factors. Three models are included to represent men and women combined, and then separated for black men and women, respectively.

Before discussing the testing of my predictions, I note the significant effects of the control variables on depression. As expected, women are more likely to report higher levels of depression than men. Individuals with education below high school report higher levels of depression than those with college education. Those with income less

than $30,000 feel more depressed than those above $30,000. Unemployed and not in the labor force report more depression than those employed. Those who are divorced are less likely to report feeling depressed than married individuals, but only for women. Higher family demands and difficulty paying bills are associated with higher levels of depression, but only for women.

For Prediction 1, I expected that perceived discrimination would be positively associated with perceived levels of psychological distress, in this case, depression. I found that perceived levels of discrimination has a positive effect on depression for black men and women categorized as non-smokers and smokers (β=.135; $p \leq .001$). This significant and positive impact of perceived discrimination on depression holds for black men (β=.111; $p \leq .01$) and black women (β=.153; $p \leq .01$). Therefore, Prediction 1 is supported for both groups, combined or separate.

Prediction 2 suggests that perceived social support from family and friends will be inversely associated with perceived levels of psychological distress, or depression. I found a marginally significant effect on depression for men, where an increase in friends help you out decrease the likelihood of reported depression (β=-.544; $p \leq .10$). In addition, the social support variable of family helps you out (β=-.473; $p \leq .10$) has a marginally significant and negative effect on depression for black women: this means when family helps and provide social support, black women experience a decrease in depression. As seen in Table 5, there is a significant interaction effect of gender and family help you (β=-.352; $p \leq .05$), showing the effect of family social support on depression depends on gender. That is, the more family helps you the less depression is reported, but only so for

women. No other social support variables reach significance. Therefore, prediction 2 is only partially and minimally supported.

Prediction 3a presupposes that the higher the levels of helplessness and hopelessness of the individual, the higher the perceived level of psychological distress, or depression. In Table 5, a significant and positive effect is found in the All Group model, where feel helpless (β=1.161; $p \leq .001$) and reporting that future seems hopeless (β=.568; $p \leq .001$) positively impact depression. When the sub-groups are separated, feel helpless (β=.927; $p \leq .001$) and future seems hopeless (β=.469; $p \leq .05$) all have a significant positive impact on depression for black men. The same pattern occurs for black women, where feel helpless (β=1.368; $p \leq .001$) and future seems hopeless (β=.669; $p \leq .01$) positively and significantly affect depression. Therefore, Prediction 3a is supported.

Prediction 3b proposed that a negative relationship between perceived social support and perceived level of depression will be stronger for individuals with a high level of internal sense of helplessness and hopelessness. In my analysis, I tested for multiple interactions of the friends and family social support variables with the helpless and hopeless variables, including the control variables on depression. There were no significant findings for interactions between social support and helplessness/hopelessness on depression. Therefore, Prediction 3b is not supported.

In Table 6, similar patterns are observed. Table 6 represents the direct effects of my factors on depression for smokers only, including control variables, where the first model is black men and women smokers combined, the second model represent black men smokers and the third model, black women smokers. For the first All-Group model, feel helpless (β=1.148; $p \leq .001$), future seems hopeless (β=.627; $p \leq .001$) and perceived

discrimination (β=.155; p≤.001) all positively impact depression. In other words, the more smokers perceived heightened levels of each of these factors, the more they experienced depression. Perceived discrimination is positively associated with depression for black men (β=.130; p≤.001) and black women (β=.164; p≤.01). Therefore, Prediction 1 is supported for black smokers.

For Prediction 2, friends help you out (β=-.970; p≤.05) has a significant and negative impact on depression for black men smokers; however, a significant and positive effect was found for you help friends out (β=.769; p≤.05). This means that black men significantly report less depression when they receive social support from friends, but when they provide social support to friends they report higher levels of depression. For black women, the more family help them out (β=-.461; p≤.10) the less depression they report. Therefore, Prediction 2 is partially supported for black smokers.

For black men and women combined in the all-group results show significant effects for feel helpless (β=1.148; p≤.001) and future seems hopeless (β=.627; p≤.001) on depression. For black men, feel helpless (β=.761; p≤.01) and future seems hopeless (β=.409; p≤.05) are positive and significant. Also, for black women, there are positive and significant effects for feel helpless (β=1.511; p≤.001) and future seems hopeless (β=.712; p≤.05). This supports Prediction 3a, where higher levels of helplessness and hopelessness result in higher levels of depression for black smokers.

Again, for Prediction 3b I tested for interaction effects of the friends and family social support variables with the helpless and hopeless variables on depression for smokers. My analyses showed no significant findings for interactions between social

support and helplessness or hopelessness on depression for black men and women smokers. Therefore, Prediction 3b is not supported.

Prediction 4 predicts that perceived level of psychological distress will be positively associated with smoking behavior. Table 7 represents the direct effects of depression on smoking behavior for non-smokers and smokers, controlling for a variety of variables. This table includes two models, the first of which, represent non-smokers and smokers as one group and the second model for all black smokers. My findings show no significant effects of depression on engaging in smoking behavior and on the number of cigarettes one smokes per day. Therefore, Prediction 4 is not supported.

Table 8 represents the effects of my control, independent, and mediating variables on the likelihood of smoking behavior for black men and women. Table 9 also analyzes these same factors for black men and women smokers, as an integrated group, and separated as individual gender-based subgroups, resulting in three models. Prediction 5 presupposed an effect of perceived discrimination, social support, and helplessness/hopelessness on smoking behavior as mediated through my indicator of psychological distress, depression. The effects of perceived discrimination, social support, and helplessness/hopelessness on smoking behavior for black men and women are not mediated through my indicator of psychological distress, depression. Depression does not have a direct effect on smoking behavior (see in Table 7). Therefore, prediction 5 is not supported. I examine, however, the direct effects of my theoretical variables on smoking behavior with depression included in the models.

Table 8 shows a significant interaction effect between gender and perceived discrimination (β=-.092; $p \leq .01$) on the likelihood of smoking for black men and women

non-smokers and smokers. This interaction shows that the effect of perceived discrimination on the likelihood of smoking varies by gender. Perceived discrimination significantly increases the likelihood for men to engage in smoking behavior; however, a significant and negative effect is found for women. This means that, for black men, the likelihood of smoking significantly increases as perceived discrimination increases. Conversely, perceptions of discrimination significantly decrease the likelihood to smoke for black women.

In addition, for the all group model, there is a gender and depression interaction effect (β=.079; $p \leq .05$). In the All Group model, I find a marginal and negative effect on the likelihood of smoking behavior where an increase in depression decreases the likelihood of smoking. When I separate out men and women, I lose the significance of depression on smoking behavior; however, the patterns remain where depression differentially affects the odds of smoking for men and women, in opposite directions. The likelihood of smoking increases for black women when depression increases, yet decreases when depression increases for black men. Finally, there is a marginally significant effect of 'you help family out' for black women. This means that the likelihood of smoking increases for black women when they provide social support for family.

In Table 9, focusing on number of cigarettes per day, I find that perceived discrimination has no significant effect on amount of smoking for black men and women smoking, unlike for the likelihood of smoking. The social support factor of 'family help you' is marginally significant (β=1.064; $p \leq .10$) and positively associated with smoking behavior and the number of cigarettes one partakes. This significance, however, is lost in

separate group analysis. Also, a marginally significant and positive effect is found in the all group model (β=.690; p≤.10) for helps family out. The pattern maintains for black women (β=1.060; p≤.01), but not significant for black men. There is a marginally positive effect for black women smokers for friends help you out (β=1.535; p≤.10).

and depression (β=.234; p≤.05). In addition, when black women experience more depression, their smoking behavior significantly increases (β=.234; p≤.05). Depression does not significantly affect men's frequency of smoking behavior. Hopelessness is positively associated and significant for the all group of black smokers (β=3.876; p≤.10). This pattern is significant and positive for black men smokers (β=5.888; p≤.05), but is not significant for black women smokers. Depression and hopelessness affect men and women's smoking behavior differently, yet in the same direction.

In addition, I find an interaction effect between the 'hopeless' and the 'family help you' social support variable (β=-.677; p≤.10). This interaction shows that the effect of hopelessness depends on the level of social support. For black men and women smokers, those with low social support increase smoking behavior when hopelessness increases. This is in comparison to those with high social support whom decrease smoking behavior with increasing hopelessness. For black men smokers, I found a significant interaction between the hopeless and the 'family help you' variables (β=-1.271; p≤.05). Again, the effects of hopelessness depend on the level of social support. For black men, as level of hopelessness increases, there is a significant increase in smoking behavior for those with low social support compared to a decrease in cigarette

use for those with high social support. There is no significant interaction between hopeless and family help you for black women smokers.

For the hopeless and 'friends help you out' interaction, I found a marginally significant effect for black men smokers (β=1.132; $p \leq .10$) and a stronger significant effect for black women smokers (β=-1.418; $p \leq .001$). Again, I find that hopelessness and the level of social support is related to number of cigarettes smoked per day. For black men smokers, when hopelessness increases and is at high levels, cigarette use increases as help from friends increases. For black women smokers at high levels of hopelessness, a significant decrease in smoking behavior is found in those that receive more help from friends compared to those that receive help from friends less.

There is also a significant interaction of hopeless and 'you help friends out' for black men smokers (β=-1.824; $p \leq .05$) and a marginally significant effect is found for black women smokers (β=.879; $p \leq .10$). For black men, when hopelessness is at high levels, as helping friends decreases, number of cigarettes increases. Conversely, for black women, when hopelessness is at high levels, as helping friends increases, smoking cigarettes increases.

In the appendix, I have provided the specific theoretical models for the likelihoods and amount of smoking behavior for black men and women. See Figure 2a for the empirical representation of factors that affect the likelihood of smoking behavior for black men. Figure 2b represents the empirical representation for the amount of smoking behavior for black men. Comparatively, Figure 3a shows the empirical representation of factors that affect the likelihood of smoking behavior for black women.

Finally, Figure 3b represents the empirical representation of factors that affect the amount of smoking behavior for black women.

CHAPTER 6: Conclusion

As stated in the beginning of my dissertation, we, as global citizens, and more specifically, American citizens, live in a time of advancement, wonder, and technological spectacle in many domains of life. The advances of technology in health have prolonged the lives of many, both young and old, and have provided a quality of life that many, only fifty years ago, could only begin to imagine. Despite these advancements, many benefits have only disproportionately distilled to certain populations, due to a host of reasons working as a function of society's ills. In the face of ostensibly incurable diseases and conditions such as AIDS, Alzheimer's, malaria, and a host of others, the most insufferable conditions are morbidity and loss of life due to preventable causes. Cigarette smoking is one of these preventable causes.

My primary motivation for this dissertation was, and still is to better understand how perceived discrimination, social support, helplessness and hopelessness may affect black men and women levels of psychological distress and, in turn, smoking behavior. In my dissertation, I observed that perceived discrimination is strongly and positively associated with psychological distress measured as depression, for black men and women smokers and non-smokers. This supports Harrell's (2000) theoretical framework that categorizes discrimination as a source of racism-related stress as well as supports Williams (2000) research that reports a positive association between discrimination and psychological distress. Higher levels of perceived discrimination are associated with higher levels of reported depression for both black men and women.

In addition, perceived discrimination affects the adoption of smoking behavior for black men and women significantly, but in opposite directions. Increased perceived discrimination increases the odds of adopting smoking behavior for black men in models with and without depression. On the other hand, perceived discrimination has a negative effect on the adoption of smoking as a coping behavior for black women in models with and without depression. This gender difference may be an example of differential coping styles between men and women or available coping resources. For example, it is possible that perceived discrimination is associated with overeating for women, but not men. This echoes differential coping strategies an individual may take, as supported by Thoits (2011) and Holahan and Moos (1994).

For social support on depression within the smoker and non-smoker group, gender again matters. For black women, the more family helps out, the less depression is reported. For black men, however, when friends helped them out, they report less depression. Similarly, for black men and women smokers, the help from family for black women has a marginally significant decrease in depression, and friends helping out significantly reduces depression for black men. In addition, for black men I found a significant increase in depression when they helped their friends out with social support. One of the findings in Simon's (2002) research on gender, marital status, and mental health shows that men and women differentially respond to stress and manifest distress with different emotional problems, such as substance abuse and depression, respectively. Also, Thoits (2011) further confirms that the effects of social support depend on who the social network is comprised of and the type of support offered, while maintaining that the mechanisms are complex and unclear. My findings support the differential responses to

social support based on gender as well as the sensitivity to the differential influences of family or friends that give or receive social support. This may be the result of stress occurring from the sharing or giving away of potentially limited resources. Also interestingly, family support is associated with depression for black women, whereas friends and the type of support given or received are more relevant for black men.

The patterns are more complicated when the relationship between social support and smoking is analyzed. When looking at direct effects on smoking without depression in the model, once again, family social support appears to be important for black women in the smoker and non-smoker groups; however, differential effects are observable. When black women help family out with social support, the likelihood to smoke has a marginally significantly increase; however, there is a marginally significant decrease in the likelihood to smoke when they receive social support from family. When depression is included in the regression model, helping family out increases the likelihood to smoke for black women. The occurrence of giving potentially limited resources to family may induce stress and lead to smoking behavior.

For black smokers only, in the model without depression, a significant and positive increase in smoking is found for black women smokers that help family out with social support. Also, in the model with depression, providing support to family again positively increases smoking behavior. In all cases, social support does not affect the amount of smoking behavior of black men, either the receiving or giving of support to friends or family.

Also, for smokers only, depression positively affect amount of smoking, but only for black women. Helplessness and hopelessness has a strong significance on depression

for the black smokers and non-smokers group. The feelings of hopeless and helplessness have significant positive effects on depression for both black men and women. Thoits (2011) predicted that perceptions of control should boost an individual's confidence to cope with major stressors and be associated with lower levels of depression. This perspective supports my findings where a diminished sense of helplessness and hopelessness increases the levels of depression. These positive effects on depression significantly hold for black smokers to the same degree.

Interestingly, the strong effects of helplessness and hopelessness on depression do not translate to smoking behavior. For black smokers and non-smokers, helplessness and hopelessness has no effect on smoking behavior, whether depression is in the model or not. Feelings of hopelessness, however, significantly increase amount of smoking behavior for black men in the black smokers group. This complements Romano et al. (1991) findings where those with strong sense of health-specific locus of control tended to smoke less.

These findings indicate that my theoretical factors of perceived discrimination, social support, helplessness, and hopelessness are indeed, associated with depression. To varying degrees, black men and women respond negatively to these factors, and they do, in fact, affect depression. Importantly, however, depression does not mediate this relationship between these factors and the likelihood of smoking or amount of smoking per day. Although, these factors do not indirectly lead to smoking through stress, several factors do directly affect smoking behavior. Perceived discrimination has a direct positive effect on smoking for men whereas social support has stronger effects on smoking for women, when depression is included in the model. Also, helplessness and

hopelessness have no effect on smoking on the adoption of smoking behavior; however, feeling hopeless does have a positive and significant effect on the amount of cigarettes smoked per day for black men smokers. Depression has a positive effect on amount of smoking for black women smokers. The hopelessness measure captures something meaningful for men, while depression does the same for women.

I also find interactions between helplessness, hopelessness, and social support for both black men and women smokers that affected the number of cigarettes smoked per day when depression is in the model. To varying degrees, the effect of hopelessness depends on the level of social support received and given, and again, the social support from either friends or family were differentially significant for men and women. As referenced in Table 9, for black men and women smokers (All Group) at high levels of hopelessness, low levels of help from family had a marginally significant increase to the number of cigarettes smoked per day compared to a marginally significant decrease in smoking behavior from those that received help from family at high levels. The pattern for the interaction of hopelessness and receiving help from family persisted. For black men smokers at high levels of hopelessness, the less they received help from family the more number of cigarettes smoked per day, compared to those whose family helped to a higher degree. Interestingly, for the next interaction, it is the help received from friends that is more significant and salient for black women smokers and less so for black men. Black women at high levels of hopelessness experience a significant decrease in the amount of cigarettes smoked per day when friends help them out compared to those with low support. For black men smokers in relation to friends, a marginally significant and positive interaction effect is found at high levels of hopelessness where those with high

levels of support from friends' increases the number of cigarettes smoked per day versus those with low support. In regard to helping friends out, the last interaction of Table 9, significant effects between hopelessness and friends are found for black men and women smokers. I find a marginally significant interaction effect for black women smokers where at high levels of hopelessness, more cigarettes are smoked per day when helping friends. For black men smokers, at high levels of hopelessness, those that help friends to a lesser degree significantly smoke more cigarettes per day than those that help friends more often.

These gender differences noted above in regard to the effects of perceived discrimination, social support, depression, helplessness, and hopelessness on smoking behavior illustrate the importance of taking race and gender into consideration in understanding what may lead to the likelihood of smoking and amount of smoking for black men and women. Perceptions of environmental stimuli are likely to differ; interpretations of certain social experiences will differ, as well as the appraisals from others will differ. The way non-black others attribute dispositional traits and expectations may have a direct effect on how blacks negotiate identity and navigate the social landscape. Stereotypes for black men and women, as well as role expectations, interpretive processes, and behavioral responses are not always similar. Hence, there should be no expectation for similar interpretations, responses, and coping strategies for blacks as a group. As my research has shown, I cannot assume my theoretical variables affect black men and women in the same way, particularly as they affect smoking behavior. Black men and women perceive social dynamics in differential ways.

In addition, my results show that stress, at least as measured by depression, does not mediate the effects of my factors on smoking. The stress model as outlined by Wheaton (1999) and Harrell (2000) where stress acts as a mediator was not supported. A limitation of my study, however, is that I was only able to use depression as an indicator of psychological distress. Due to missing data, I was unable to use anxiety and this variable would be another key measure of distress, although anxiety and depression are often correlated (Neighbors et al. 2008).

Another limitation of my dissertation is the potential bias inherent in secondary analysis of cross-sectional data. Issues relating to self-report data may occur, such as interviewer bias, where respondents attempt to give socially-acceptable responses. Measurement and validity issues also may occur where the item used to assess a concept may not exhaustively account for all aspects. For example, I only have measures of helplessness and hopelessness for locus of control, and these measures are not ideal. Also, I cannot make causative claims between variables, just associations. So for example, depression may have an effect on perceptions and use of social support.

A final limitation is that there was no measure of whether individuals had ever been incarcerated. This would have enhanced my analysis to ascertain the relationship between the stress of incarceration, peer influence, and its potential influence on the adoption and perpetuation of smoking behavior.

Implications and Future Directions

In my research, I found direct effects of key theoretical factors on both depression and smoking behavior. Although stress did not mediate these factors on smoking, the direct and independent effects on depression and smoking, respectively, indicate their

importance to our understanding of health behavior. Perceived discrimination, social support, helplessness, and hopelessness's effect on mental health and smoking, speaks to the need to continue to address the disparate social conditions that lead to these maladaptive responses. Coping strategies occur in many ways. An individual under mental distress can find a host of negative coping practices that are just as detrimental to health as smoking.

Black men and women are uniquely situated and are intensely vulnerable to the effects of discrimination (Clark et al. 1999; Williams and Mohammed 2009; Williams and Sternthal 2010). Minimal personal resources in the face of maximum social forces accounts for the disparate health outcomes observable in nearly all aspects of morbidity and mortality. Discrimination is only one of many factors that have tentacle-like impacts on health. Cigarette smoking is one of many ways to respond to discrimination. It is important to note that I used cigarette smoking as a proxy for a negative behavior due to its substantiated connection to heart disease, stroke, and cancers. However, there is a multitude of other behaviors that individuals engage in that have equal or more morose effects on health; alcoholism, substance abuse, and violence to name a few.

Understanding the relationship between macro (structural) and micro (interpersonal) level interactions is key to fully understand the deleterious effects of discrimination and racism on mental and physical health. On the structural level, discrimination can be codified into policies that affect access to necessary resources that are fundamental to maximization of life chances and well-being for certain underserved populations. It is necessary to identify and acknowledge the areas where these discriminatory practices occur and deliberately intervene to enact a balance of social

justice to allow equal opportunities for all citizens. Although bias is inherent in all human interaction to some degree, this does not justify personal prejudices to affect the life opportunities of others. As stated by Martin Luther King (1963: 37), "*Morality cannot be legislated, but behavior can be regulated. Judicial decrees may not change the heart, but they can restrain the heartless*." This perspective is applicable to policies that can potentially ameliorate the effects of discrimination from a structural, meso/organizational, and interpersonal level.

Future Directions

Researchers should continue to examine the complex interaction of structural factors, available resources, and personal coping responses that operate to both facilitate improved health in some Americans and contribute to negative health outcomes for others. Understanding the importance of the factors that contribute to and perpetuate behavior is a necessary step in recommending proper guidelines to improve the lifestyles and health of all Americans.

Also, future research should be conducted to better understand how gender interacts with perceived discrimination. The differential loads of the items used in my analysis for the perceived discrimination scale indicate that black men and women perceive discrimination differently. This line of inquiry should continue to better understand the perceived discrimination factors that are salient and relevant to both men and women. This will also improve the efficacy of potential interventions designed in the future.[5]

[5] I conducted separate analyses for the specific perceived discrimination factors that were salient for black men and women and ran them in comparable regression models that mirrored my dissertation analyses in order to test their effects on depression, likelihood of smoking, and amount of cigarettes smoked (Tables 3-9). For black men, eight of the ten perceived discrimination items loaded together as well as an additional

In addition, further examination is needed to tease out the gender patterns for social support and locus of control as it relates to coping behaviors and styles. A particular contribution of my research is that I was able to assess the differential influences of social support as it relates to friends and family. I looked at social support as it was received by black men and women, as well as given to friends and family. For instance, in the face of hopelessness, black men smoke when giving support to friends versus a decreasing effect on smoking for women that receive support from friends. Where giving support to friends may decrease stress for some, the same act can increase it for others. This is also true with social support provided and received from family, where different effects were evident for men and women. Future studies can further attempt to disentangle the complex interplay of race and gender on factors such as social support and locus of control and begin the process to eventually develop customized interventions for negative health behaviors based on race and gender.

Finally, future researchers can design longitudinal studies that integrate factors such as perceived discrimination, social support, and locus of control in order to make causative claims on their relationship smoking behavior. For instance, a future study could assess how social support may potentially buffer the effects of perceived discrimination and decreases stress. Alternatively, a future longitudinal study may look at the relationship of stress on the theoretical factors I analyzed to determine whether stress may have an impact on an individual's interpretation of perceived discrimination,

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two out of the ten. The perceived discrimination items courtesy, respect, poor service, smart, afraid, dishonest, better, and followed in stores was grouped together into one scale. Insulted and threatened was used to create a second scale. For black women, five out of ten items loaded together for one scale and the other five for the second scale. The items of courtesy, respect, poor service, smart, and better were used to create the first scale. The second scale was comprised of the items afraid, dishonest, insulted, threatened, and followed in stores. I found similar patterns for the effects of perceived discrimination on depression, likelihood of smoking, and amount of smoking as I found in my primary dissertation analyses.

social support, helplessness, or hopelessness, thereby establishing causative relationships in addition to associations and directions. Lastly, although cigarette smoking is clearly associated with the top three leading causes of deaths for blacks in the U.S., other behaviors such as alcohol use, substance abuse, overeating-obesity, and other coping behaviors should be explored to better understand individual responses to stress.

Due to the historical dynamic of race relations in America, blacks and whites sometimes have a contentious relationship that is not understandable to other ethnic groups that originate or have immigrated to the United States. Due to generational prejudices of some that have traversed to positions of power, and the incumbent withholding of precious social resources, black men and women find themselves at a precarious junction of survival where the motivation to aspire to higher circumstances are sometimes met with equal and opposite motivations to discourage those attempts. It is at these times in history where "*the better angels of our nature*," as so poignantly stated by Abraham Lincoln, emerges and citizens stand up for justice and reach heavenward to attain the higher callings of our potential.

By pulling together as a nation and as a unified global entity, we all, as a human race, can begin to walk in the paths of our full and true potential in the 21st century and beyond. In the realization that we are far more similar than different, we can begin to apprehend our far-fetched dreams, daydreamed –of and speculated in the past, and move forward to make them real and attainable goals.

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Table 1A. Descriptive Statistics for Independent and Dependent Variables for Smokers and Non-Smokers in the National Survey of American Life
(Demographic Variables)

Variable	Percentage
Male	43.5
Female	56.5
Education (0-11)	31.5
Education (12-15)	57.6
Education (16 +)	10.9
Income < $10000	17.8
Income $10000-30000	39.7
Income > $30000	42.5
Unemployed	11.4
Not in Labor Force	25.3
Employed	63.3
Married	44.4
Divorced	31.8
Never Married	23.8
Number of Children in Household	
0	70.9
1	14.9
2	9.9
3	2.6
4 or More	1.7

Northeast	17.9
Midwest	20.5
South	51.4
West	10.2
Smoke Yes	65.1
Smoke No	34.9
N=1431	

Table 1B. Descriptive Statistics for Independent and Dependent Variables for Smokers and Non-Smokers in the National Survey of American Life
(Continuous Variables)

Variable		**M**	**SD**
Age	18-90	46.26	14.92
Household Income	0-200000	29821.33	29603.33
Neighborhood Context-Frequency of Crime	1.00-5.00	2.66	1.23
Neighborhood Context-Seriousness of Drug Problems	1.00-4.00	2.44	1.15
Church Attendance	1.00-5.00	2.88	1.11
Family Demands	1.00-4.00	2.03	1.03
Pay Bills	1.00-5.00	2.23	1.21
Friends Help You Out	1.00-4.00	2.45	.99
You Help Friends Out	1.00-4.00	2.75	.94
Family Helps You Out	1.00-4.00	2.69	1.02
You Help Family Out	1.00-4.00	3.21	.84
Feel Helpless	1.00-4.00	1.82	1.02
Future Seems Hopeless	1.00-4.00	1.63	.99
Perceived Discrimination	1.00-30.00	13.30	5.74
Depression Scale	1.00-25.00	5.14	4.46
Cigarettes Smoked per Day	1-65	9.29	7.48
N=1431			

Table 2A. Descriptive Statistics for Independent and Dependent Variables for Smokers in the National Survey of American Life
(Demographic Variables)

Variable	Percentage
Male	42.6
Female	57.4
Education (0-11)	33.1
Education (12-15)	57.8
Education (16 +)	9.1
Income < $10000	21.1
Income $10000-30000	40.5
Income > $30000	38.4
Unemployed	14.4
Not in Labor Force	20.5
Employed	65.1
Married	41.9
Divorced	29.4
Never Married	28.7
Number of Children in Household	
0	67.3
1	17.1
2	11.3
3	2.8
4 or More	1.6

Northeast	16.5
Midwest	21.9
South	51.6
West	10.0
N=931	

Table 2B. Descriptive Statistics for Independent and Dependent Variables for Smokers in the National Survey of American Life
(Continuous Variables)

Variable		**M**	**SD**
Age	18-90	42.68	13.59
Household Income	0-200000	26748.79	27256.53
Neighborhood Context-Frequency of Crime	1.00-5.00	2.70	1.26
Neighborhood Context-Seriousness of Drug Problems	1.00-4.00	2.49	1.17
Church Attendance	1.00-5.00	2.73	1.04
Family Demands	1.00-4.00	2.08	1.06
Pay Bills	1.00-5.00	2.35	1.24
Friends Help You Out	1.00-4.00	2.43	1.01
You Help Friends Out	1.00-4.00	2.77	.95
Family Helps You Out	1.00-4.00	2.71	1.02
You Help Family Out	1.00-4.00	3.24	.83
Feel Helpless	1.00-4.00	1.86	1.05
Future Seems Hopeless	1.00-4.00	1.71	1.04
Perceived Discrimination	1.00-30.00	13.97	6.12
Depression Scale	1.00-25.00	5.55	4.70
Cigarettes Smoked per Day	1-65	9.29	7.48
N=931			

Table 3. Logistic Regression Estimates for Smoking Behavior (Yes/No)
(All Respondents and Gender-based Subgroups-Dichotomous Dependent Variable)

	All Group	**Black Men**	**Black Women**
Gender	.953 (.641)		
Education (0-11)	-.134 (.213)	-.275 (.365)	-.094 (.335)
Education (12-15)	-.145 (.226)	-.325 (.332)	.011 (.343)
Income < $10000	1.075*** (.264)	1.174† (.597)	.966** (.301)
Income $10000-30000	.299 (.184)	.541† (.284)	.102 (.227)
Unemployed	.539† (.314)	-.151 (.592)	.952* (.419)
Not in Labor Force	-.161 (.234)	-.704 (.498)	.226 (.231)
Divorced	.010 (.159)	.026 (.216)	-.109 (.257)
Never Married	.105 (.260)	-.173 (.360)	.263 (.368)
Age	-.014 (.031)	-.051 (.064)	.005 (.051)
Age Squared	-.000 (.000)	-.000 (.001)	-.001 (.000)
Number of Children in Household	-.146 (.095)	-.227 (.166)	-.140 (.115)
Midwest	.501 (.378)	.596 (.625)	.492 (.355)
South	.401 (.308)	.323 (.455)	.494† (.292)

West	.283 (.481)	-.088 (.748)	.646 (.417)
Neighborhood Context-Frequency of Crime	-.105 (.095)	-.212 (.168)	-.027 (.086)
Neighborhood Context-Seriousness of Drug Problems	.024 (.093)	.007 (.129)	.050 (.118)
Family Demand	-.027 (.087)	-.209 (.130)	.109 (.098)
Church Attendance	-.197** (.076)	-.169 (.115)	-.271* (.107)
Pay Bills	.025 (.080)	.092 (.131)	.038 (.098)
Family Help You Out	-.075 (.087)	.014 (.146)	-.169† (.099)
You Help Family Out	.026 (.160)	.107 (.197)	.223† (.130)
Friends Help You Out	-.077 (.102)	.048 (.173)	-.172 (.152)
You Help Friends Out	.075 (.114)	.102 (.188)	.008 (.147)
Feel Helpless	-.016 (.082)	-.045 (.134)	-.043 (.106)
Future Seems Hopeless	.078 (.083)	.011 (.156)	.128 (.135)
Perceived Discrimination	.120* (.050)	.058* (.025)	-.035† (.020)
Gender x Perceived Discrimination	-.073* (.031)		
Gender x You Help Family	.004 (.188)		

R^2	---	---	---
N	1085	452	633

† p≤.10; *p≤.05; **p≤.01; ***p≤.001 (two tailed tests)
Numbers in parentheses are standard errors

Table 4. OLS Regression Estimates for Number of Cigarettes Smoked per Day

	All Group	**Black Men**	**Black Women**
Gender	-2.174**		
	(.692)		
Education (0-11)	1.102	3.196	-1.453
	(1.151)	(2.163)	(1.720)
Education (12-15)	.610	1.736	-1.079
	(1.012)	(1.853)	(1.306)
Income < $10000	-.329	-3.104†	.969
	(1.027)	(1.685)	(1.200)
Income $10000-30000	-.822	-2.146†	.112
	(.768)	(1.027)	(.915)
Unemployed	.432	-1.368	1.879†
	(.950)	(1.447)	(1.004)
Not in Labor Force	-.387	.042	-.269
	(1.271)	(2.086)	(1.119)
Divorced	-.940	-1.223	-.654
	(.992)	(1.748)	(.862)
Never Married	-.908	-1.082	-.262
	(.888)	(1.614)	(.912)
Age	.224†	.138	.209
	(.111)	(.148)	(.137)
Age Squared	-.002†	-.001	-.002
	(.001)	(.002)	(.001)
Number of Children in Household	.612†	.188	.579
	(.332)	(.718)	(.428)
Midwest	2.457†	5.569**	-.339
	(1.364)	(2.089)	(1.116)
South	1.544*	2.663*	.928
	(.683)	(1.140)	(.829)
West	1.817*	3.254*	.687
	(.851)	(1.324)	(1.383)

Neighborhood Context- Frequency of Crime	.105 (.267)	.075 (.520)	.105 (.333)
Neighborhood Context- Seriousness of Drug Problems	-.034 (.209)	.146 (.328)	-.257 (.383)
Family Demand	.239 (.254)	.472 (.504)	-.147 (.345)
Church Attendance	.034 (.344)	-.014 (.438)	-.095 (.319)
Pay Bills	.087 (.311)	.260 (.426)	.105 (.336)
Family Help You Out	-.121 (.334)	-.619 (.714)	.254 (.290)
You Help Family Out	.733† (.415)	.371 (.744)	1.141** (.406)
Friends Help You Out	-.133 (.346)	.670 (.632)	-.717 (.451)
You Help Friends Out	-.397 (.422)	-.850 (.780)	-.072 (.445)
Feel Helpless	.229 (.300)	-.377 (.569)	.056 (.304)
Future Seems Hopeless	-.234 (.524)	.435 (.702)	-.218 (.339)
Perceived Discrimination	-.004 (.072)	-.061 (.109)	.060 (.054)
R^2	.066	.117	.073
N	696	288	408

† p≤.10; *p≤.05; **p≤.01; ***p≤.001 (two tailed tests)
Numbers in parentheses are standard errors

Table 5. OLS Regression Estimates for Depression (Smokers and Non-Smokers)

	All Group	Black Men	Black Women
Gender	1.675* (.655)		
Education (0-11)	.878* (.323)	1.383** (.492)	.311 (.527)
Education (12-15)	.381 (.392)	.829 (.499)	-.078 (.505)
Income < $10000	1.003** (.357)	.971† (.553)	1.093* (.468)
Income $10000-30000	.450 (.296)	-.109 (.403)	1.078** (.436)
Unemployed	.876* (.431)	.857 (.577)	.968 (.650)
Not in Labor Force	.700* (.332)	1.034* (.506)	.490 (.492)
Divorced	-.528* (.394)	-.129 (.522)	-.658* (.490)
Never Married	-.024 (.359)	.577 (.484)	-.334 (.441)
Age	.073 (.054)	.109 (.095)	.052 (.047)
Age Squared	-.001* (.001)	-.001 (.001)	-.001* (.001)
Number of Children in Household	-.133 (.140)	-.094 (.315)	-.229 (.183)
Midwest	-.148 (.570)	.817 (.646)	-.771 (.630)
South	.074 (.570)	1.314* (.555)	-.906 (.624)
West	-.850 (.567)	-.020 (.635)	-1.538* (.636)

Neighborhood Context-Frequency of Crime	.122 (.122)	.003 (.209)	.195 (.138)
Neighborhood Context-Seriousness of Drug Problems	.106 (.151)	.280 (.222)	.041 (.121)
Family Demand	.119 (.118)	.134 (.188)	.167* (.171)
Church Attendance	.149 (.125)	.172 (.140)	.123 (.158)
Pay Bills	.410** (.151)	.362 (.194)	.456** (.167)
Family Helps You Out	.220 (.356)	-.063 (.191)	-.473† (.237)
You Help Family Out	.075 (.178)	.118 (.244)	-.004 (.203)
Friends Help You Out	-.107 (.196)	-.544† (.298)	.126 (.234)
You Help Friends Out	.197 (.231)	.418 (.316)	.175 (.284)
Feel Helpless	1.161*** (.158)	.927*** (.176)	1.368*** (.231)
Future Seems Hopeless	.568*** (.123)	.469* (.186)	.669** (.209)
Perceived Discrimination	.135*** (.028)	.111** (.032)	.153** (.047)
Gender x Family Help You Interaction	-.352* (.233)		
R^2	.345	.293	.412
N	1083	451	632

† p≤.10; *p≤.05; **p≤.01; ***p≤.001 (two tailed tests)
Numbers in parentheses are standard errors

Table 6. OLS Regression Estimates for Depression (Smokers Only)

	All Group	Black Men	Black Women
Gender	2.248**		
	(.850)		
Education (0-11)	.290	1.293*	-.901
	(.499)	(.558)	(.618)
Education (12-15)	.105	1.043	-.878
	(.517)	(.673)	(.719)
Income < $10000	.938†	1.116†	1.197†
	(.461)	(.663)	(.599)
Income $10000-30000	.246	-.712	1.374*
	(.312)	(.428)	(.574)
Unemployed	.777†	1.012	.901
	(.465)	(.658)	(.771)
Not in Labor Force	.602*	.099	.857
	(.485)	(.645)	(.707)
Divorced	-.783†	-.405	-1.314*
	(.442)	(.565)	(.586)
Never Married	.266	.635	-.343
	(.459)	(.537)	(.536)
Age	.071	.028	.095
	(.057)	(.098)	(.058)
Age Squared	- .001†	-.000	-.001†
	(.001)	(.001)	(.001)
Number of Children in Household	-.163	-.634*	.012
	(.200)	(.279)	(.206)
Midwest	-.460	.660	-1.104
	(.647)	(.467)	(.857)
South	-.160	1.350***	-1.347
	(.601)	(.379)	(.875)
West	-1.608*	-1.184	-1.769*
	(.649)	(.762)	(.843)

Neighborhood Context- Frequency of Crime	.133 (.139)	-.224 (.239)	.334† (.179)
Neighborhood Context- Seriousness of Drug Problems	.171 (.187)	.505† (.269)	-.062 (.164)
Family Demand	.257† (.132)	.242 (.236)	.359† (.181)
Church Attendance	.257† (.147)	.399* (.175)	.165 (.234)
Pay Bills	.348† (.172)	.460* (.179)	.307* (.197)
Family Help You Out	.358 (.452)	-.021 (.213)	-.461† (.264)
You Help Family Out	.005 (.229)	.069 (.330)	-.140 (.237)
Friends Help You Out	-.176 (.277)	-.970* (.360)	-.201 (.294)
You Help Friends Out	.278 (.259)	.769* (.369)	.222 (.307)
Feel Helpless	1.148*** (.214)	.761** (.226)	1.511*** (.312)
Future Seems Hopeless	.627*** (.167)	.409* (.236)	.712* (.304)
Perceived Discrimination	.155*** (.032)	.130*** (.033)	.164** (.059)
Gender x Family Help You Interaction	-.401 (.315)		
R^2	.367	.364	.435
N	701	290	411

† p≤.10; *p≤.05; **p≤.01; ***p≤.001 (two tailed tests)
Numbers in parentheses are standard errors

Table 7. OLS and Logistic Regression Estimates for Depression on Smoking Behavior (Non-Smokers and Smokers)
(All Respondents and Gender-based Subgroups-Dichotomous and Continuous Dependent Variable)

	Smoke (Yes/No)	**All Black Smokers**
Gender	-.062 (.195)	-2.850** (1.047)
Education (0-11)	.005 (.231)	.988 (1.001)
Education (12-15)	-.094 (.204)	.095 (.940)
Income < $10000	.755** (.226)	-.541 (.985)
Income $10000-30000	.228 (.178)	-.851 (.672)
Unemployed	.306 (.269)	-.091 (.926)
Not in Labor Force	-.038 (.210)	-1.131 (1.085)
Divorced	.152 (.162)	-.145 (.943)
Never Married	.172 (.232)	-.841 (.912)
Age	-.020 (.029)	.248** (.096)
Age Squared	-.000 (.000)	-.002* (.001)
Number of Children in Household	-.123 (.087)	.779** (.299)
Midwest	.494	2.397†

	(.359)	(1.421)
South	.434 (.328)	1.820* (.717)
West	.276 (.497)	1.301 (.985)
Neighborhood Context-Frequency of Crime	-.070 (.082)	-.151 (.226)
Neighborhood Context-Seriousness of Drug Problems	.041 (.089)	.016 (.225)
Family Demand	.017 (.072)	.408 (.289)
Church Attendance	-.218* (.084)	-.104 (.328)
Pay Bills	.043 (.073)	.148 (.348)
Depression Scale	-.010 (.064)	-.078 (.252)
Gender x Depression Interaction	.016 (.035)	.090 (.159)
R^2	---	.066
N	1262	797

† p≤.10; *p≤.05; **p≤.01; ***p≤.001 (two tailed tests)
Numbers in parentheses are standard errors

Table 8. Logistic Regression Estimates for Smoking Behavior (Yes/No)
(All Respondents and Gender-based Subgroups-Dichotomous Dependent Variable)

	All Group	**Black Men**	**Black Women**
Gender	.834*		
	(.413)		
Education (0-11)	-.143	-.236	-.120
	(.221)	(.369)	(.346)
Education (12-15)	-.144	-.300	.021
	(.231)	(.338)	(.343)
Income < $10000	1.061***	1.192*	.930**
	(.269)	(.600)	(.305)
Income $10000-30000	.295†	.544†	.063
	(.186)	(.285)	(.224)
Unemployed	.538†	-.181	.930*
	(.321)	(.592)	(.430)
Not in Labor Force	-.163	-.674	.215
	(.229)	(.487)	(.225)
Divorced	.017	.023	-.099
	(.162)	(.213)	(.262)
Never Married	.110	-.152	.258
	(.257)	(.362)	(.361)
Age	-.014	-.050	.007
	(.031)	(.065)	(.049)
Age Squared	-.000	-.000	-.001
	(.000)	(.001)	(.000)
Number of Children in Household	-.146	-.229	-.128
	(.095)	(.164)	(.111)
Midwest	.558*	.629	.552
	(.386)	(.623)	(.373)
South	.466	.376	.563†
	(.322)	(.459)	(.316)

West	.351	-.077	.761†
	(.488)	(.744)	(.445)
Neighborhood Context-Frequency of Crime	-.109	-.208	-.037
	(.095)	(.167)	(.085)
Neighborhood Context-Seriousness of Drug Problems	.031	-.013	.058
	(.094)	(.130)	(.117)
Family Demand	-.023	-.206	.105
	(.088)	(.130)	(.101)
Church Attendance	-.196*	-.164*	-.279*
	(.076)	(.116)	(.109)
Pay Bills	.019	.103	.016
	(.081)	(.133)	(.097)
Family Help You Out	-.065	.008	-.145
	(.086)	(.144)	(.102)
You Help Family Out	.165	.112	.227†
	(.107)	(.197)	(.130)
Friends Help You Out	-.081	.041	-.185
	(.100)	(.167)	(.157)
You Help Friends Out	.078	.109	.004
	(.114)	(.183)	(.149)
Depression Scale	-.116†	-.032	.051
	(.066)	(.030)	(.029)
Feel Helpless	-.023	-.016	-.111
	(.082)	(.129)	(.119)
Future Seems Hopeless	.067	.027	.084
	(.082)	(.153)	(.134)
Perceived Discrimination	.145**	.062*	-.045*
	(.051)	(.025)	(.019)
Gender x Depression Interaction	.079*		
	(.039)		

Gender x Perceived Discrimination Interaction	-.092** (.031)		
R^2	---	---	---
N	1083	451	632

† p≤.10; *p≤.05; **p≤.01; ***p≤.001 (two tailed tests)
Numbers in parentheses are standard errors

Table 9. OLS Regression Estimates for Number of Cigarettes Smoked per Day

	All Group	Black Men	Black Women
Gender	-2.221**		
	(.683)		
Education (0-11)	1.219	3.793†	-1.072
	(1.020)	(2.008)	(1.480)
Education (12-15)	.612	1.673	-.775
	(.890)	(1.732)	(1.094)
Income < $10000	-.727	-3.516*	.468
	(.960)	(1.543)	(1.128)
Income $10000-30000	-.877	-2.059†	-.234
	(.788)	(1.070)	(.904)
Unemployed	.507	-.974	1.757†
	(.928)	(1.387)	(.985)
Not in Labor Force	-.483	-.045	-.473
	(1.245)	(1.937)	(.961)
Divorced	-.714	-.889	-.386
	(.889)	(1.635)	(.772)
Never Married	-.859	-1.193	-.318
	(.837)	(1.505)	(.802)
Age	.195	.046	.146
	(.116)	(.184)	(.118)
Age Squared	-.002	-.000	-.001
	(.001)	(.002)	(.001)
Number of Children in Household	.640*	.188	.575
	(.312)	(.646)	(.400)
Midwest	2.707*	5.967**	-.083
	(1.350)	(1.994)	(1.033)
South	1.779**	3.028**	1.319
	(.605)	(1.085)	(.806)
West	1.902	3.459*	.944
	(.913)	(1.452)	(1.410)

Neighborhood Context-Frequency of Crime	.053 (.275)	-.045 (.573)	-.053 (.305)
Neighborhood Context-Seriousness of Drug Problems	-.055 (.217)	.094 (.372)	-.184 (.367)
Family Demand	.271 (.244)	.604 (.474)	-.078 (.323)
Church Attendance	-.031 (.346)	.083 (.520)	-.194 (.291)
Pay Bills	.014 (.301)	.342 (.416)	-.002 (.324)
Family Help You Out	1.064† (.641)	1.309 (.948)	.514 (.639)
You Help Family Out	.690† (.398)	.315 (.722)	1.060** (.371)
Friends Help You Out	.295 (.866)	-1.521 (1.184)	1.535† (.885)
You Help Friends Out	.351 (1.081)	2.502 (1.550)	-1.552 (.979)
Depression Scale	.176* (.087)	.162 (.111)	.234* (.113)
Feel Helpless	-.393 (.282)	.408 (.493)	- .425 (.370)
Future Seems Hopeless	3.876† (2.199)	5.888* (2.866)	.773 (1.468)
Perceived Discrimination	-.021 (.073)	-.048 (.107)	.033 (.051)
Hopeless x Family Help You Out Interaction	-.677† (.391)	-1.271* (.527)	-.053 (.378)
Hopeless x Friends Help You Out Interaction	-.245 (.479)	1.132† (.680)	-1.418*** (.401)
Hopeless x You Help Friends Out Interaction	-.485 (.621)	-1.824* (.841)	.879† (.533)

R^2	.096	.177	.121
N	695	288	407

† p≤.10; *p≤.05; **p≤.01; ***p≤.001 (two tailed tests)
Numbers in parentheses are standard errors

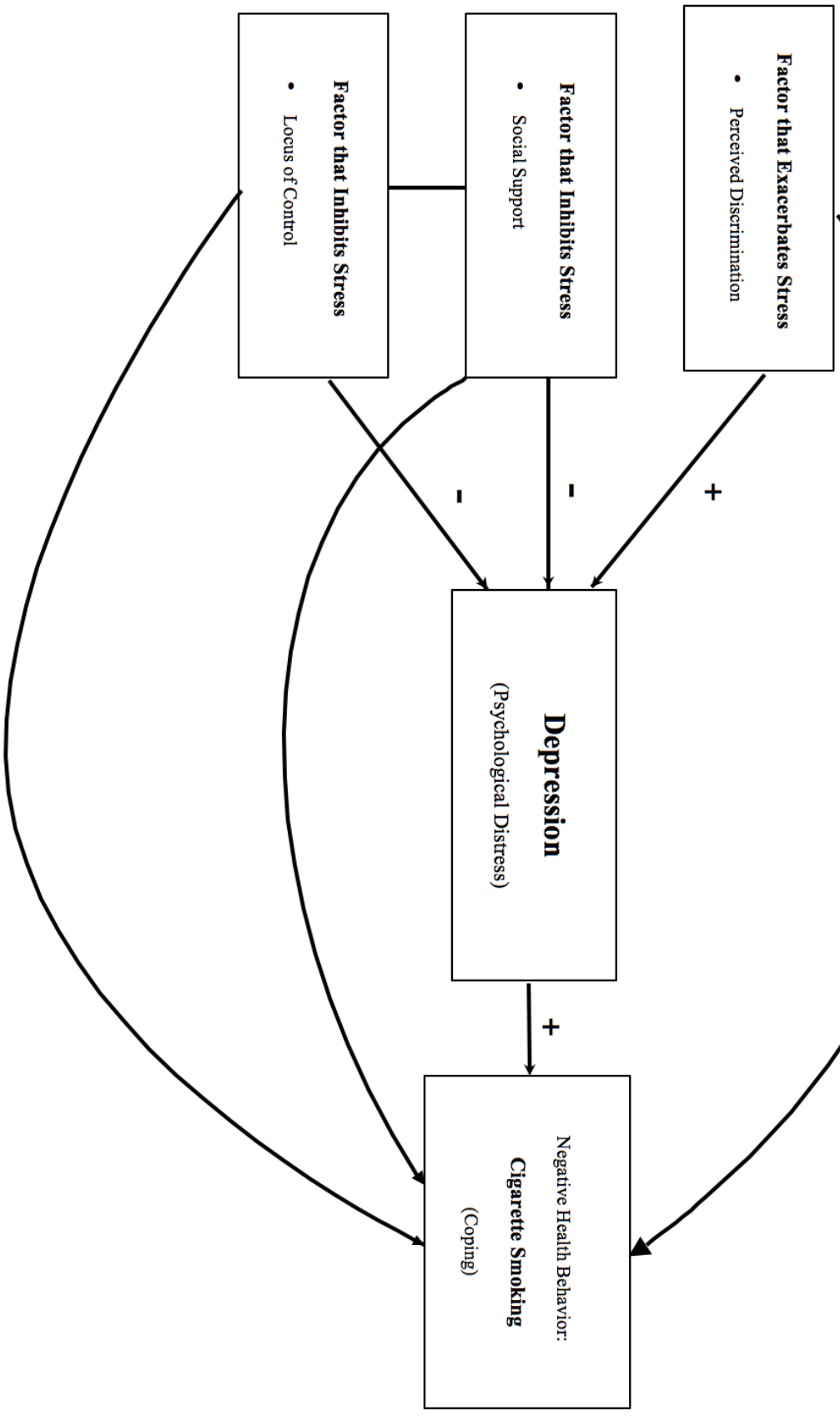

Figure 1: Theoretical Model of Factors that Affect Smoking Behavior

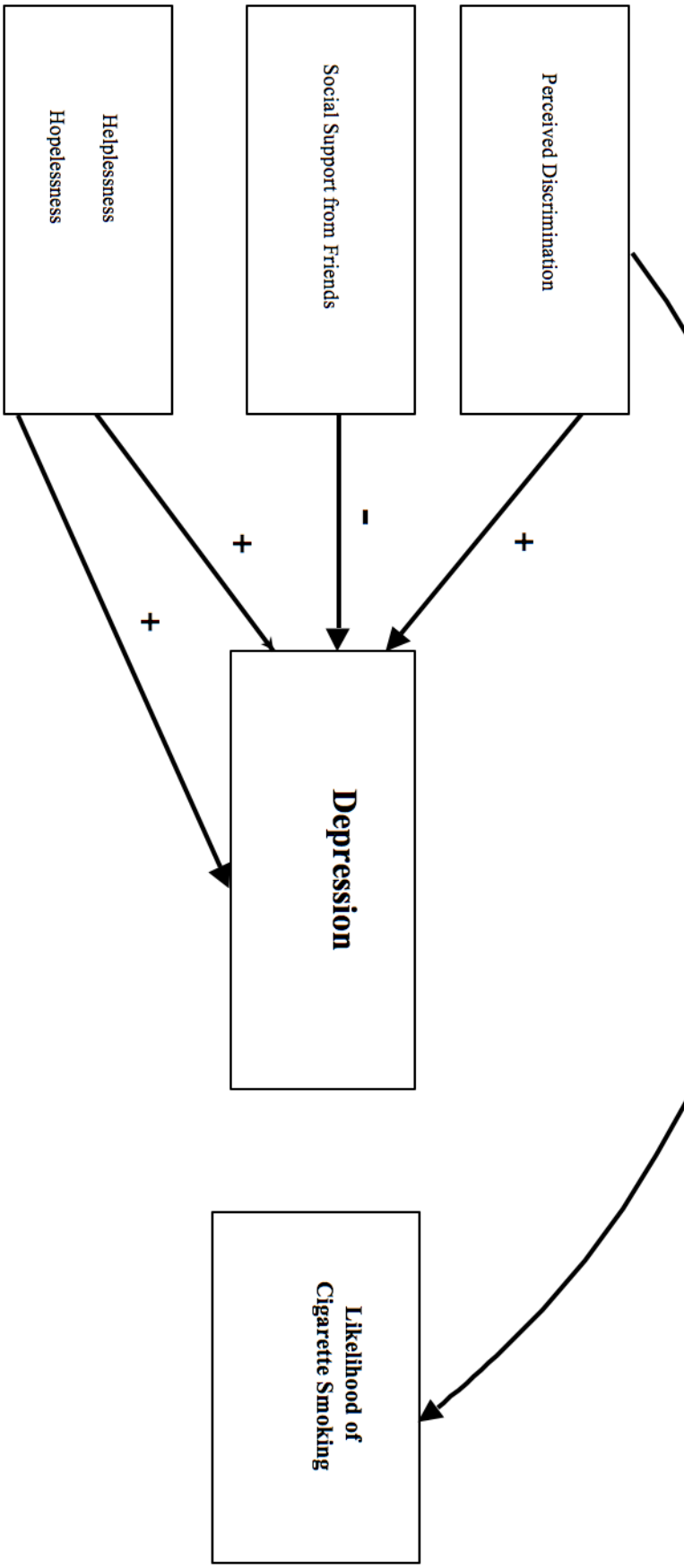

Figure 2a: Empirical Representation of Factors that Affect the Likelihood of Smoking Behavior for Black Men

Figure 2b: Empirical Representation of Factors that Affect the Amount of Smoking Behavior for Black Men

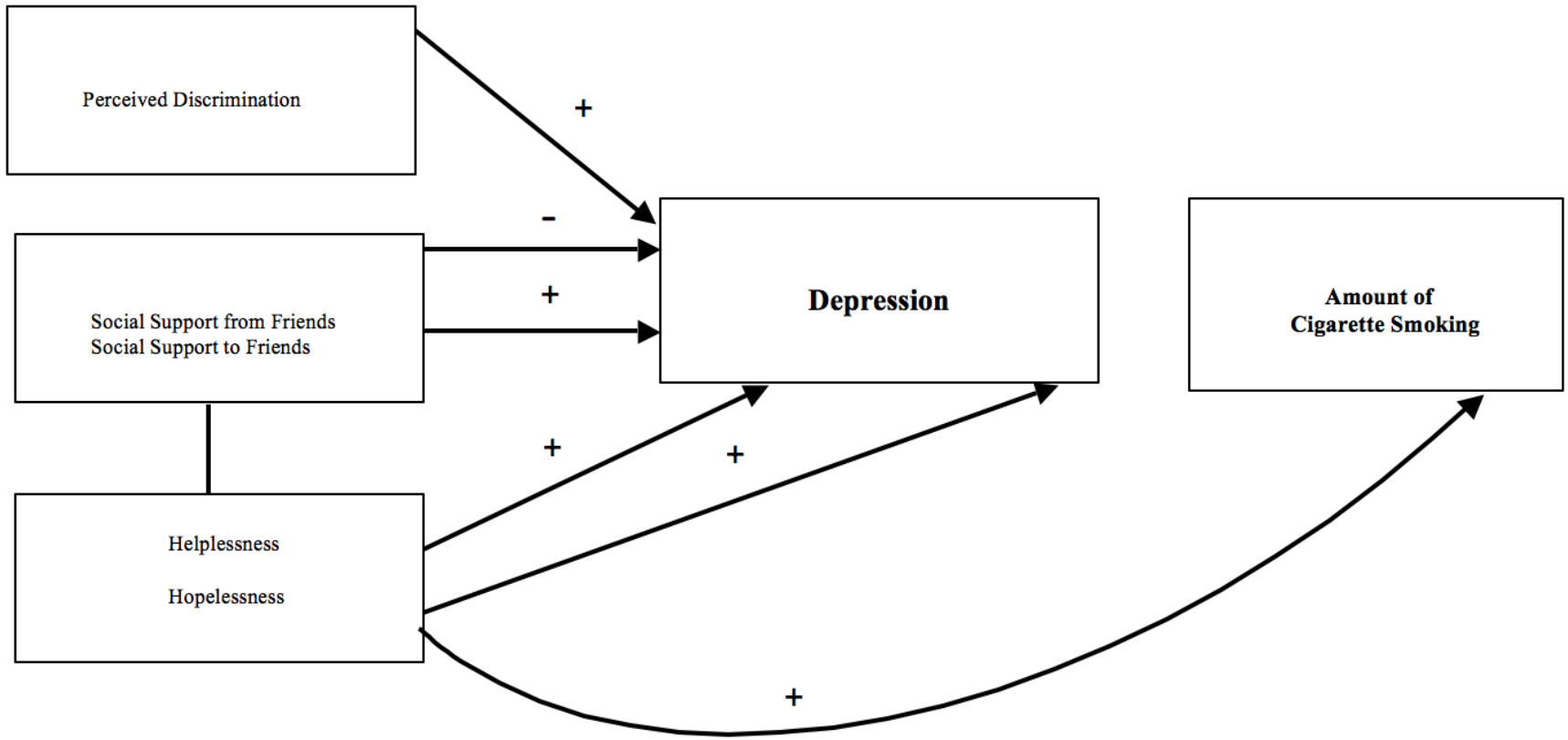

Figure 3a: Empirical Representation of Factors that Affect the Likelihood of Smoking Behavior for Black Women

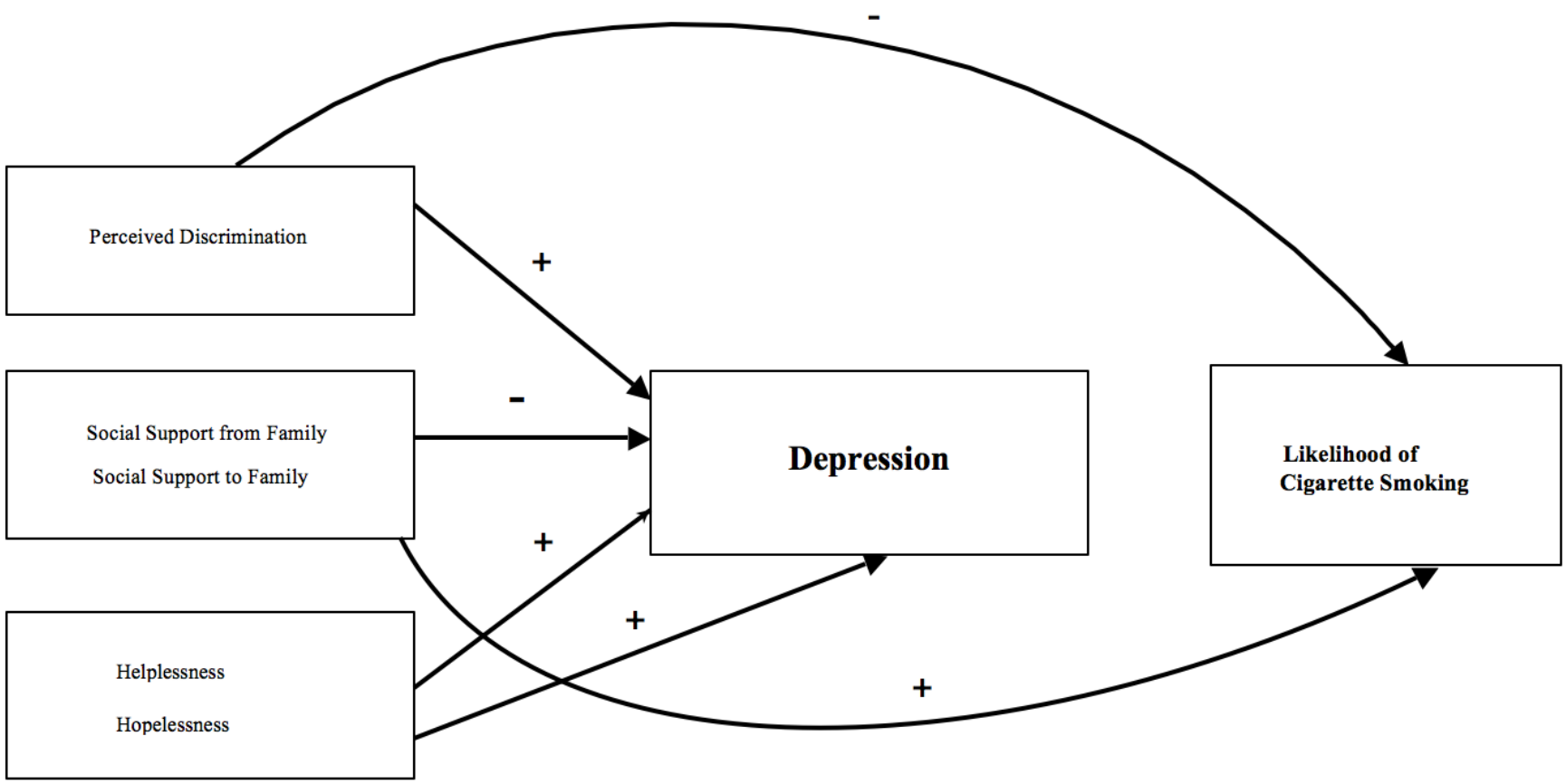

Figure 3b: Empirical Representation of Factors that Affect the Amount of Smoking Behavior for Black Women