THE RELATIONSHIP BETWEEN RACIAL DISCRIMINATION INDUCED ANGER AND SMOKING AMONG BLACK ADOLESCENTS

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This study explored whether a relationship exists between smoking behaviors and racial discrimination induced anger among Black adolescents. Participants consisted of 134 Black adolescents from 14 to 18 years of age who frequently visited a recreation center in the Northeast. Forty-four participants were males and 90 were females. All participants were administered a modified version of the CAGE questionnaire, a background information questionnaire, and a measure designed to assess the extent to which they feel angry because they had been discriminated against. Only age was found to be predictive of scores on the CAGE. Only gender was found to be predictive of smoking frequency. The Black Anger Measure (BAM) was significantly correlated with smoking behaviors. Some implications for theory, research and practice are suggested.
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CHAPTER I

INTRODUCTION

Racial Discrimination Induced Anger and Smoking Among Black Adolescents

Based on data provided in the 2005 National Survey on Drug Use and Health (NSDUH), 71.5 million Americans ages 12 and older reported smoking a tobacco product in the last month. Research also indicates that one out of every three adolescents begins smoking before age 18 (Krainuwat, 2005; Johnston, O’Malley, & Bachman, 1998; U.S. Department of Health and Human Services, 1994). In fact, results from the 2005 National Survey on Drug Use and Health (NSDUH) found that among adolescents, ages 12 to 17 years, approximately 2.7 million reported the use of cigarettes in the past month. Furthermore, results of the 2001 National Household Survey on Drug abuse reported that among adolescent smokers, 33.7% were daily smokers.

A study conducted by the American Lung Association (2003) is consistent with the aforementioned finding, results of this study indicate that approximately one-third of young people from 12 to 17 years of age were daily smokers. Other research indicates that the earlier adolescents begin to smoke, the more likely they are to smoke as adults. As a result, the length of time adolescents’ smoke during their lifetime increases, leading to an increased number of addictions and health risks (Krainuwat, 2005; Chassin, Presson, Rose, & Sherman, 1996; Pierce & Gilpin, 1996). Based upon these findings it seems important to identify the contributions to cigarette smoking among adolescents.
Correlates of Smoking and Physical Health

It is generally agreed that smoking has various physical consequences on the body. Individuals who smoke increase their chances of being diagnosed with smoking related conditions such as cardiovascular disease (Thom et al., 2006; Wald & Hackshaw, 1996), lung cancer, cerebrovascular disease, chronic obstructive pulmonary disease (COPD), emphysema, and chronic bronchitis (U.S. Department of Health and Human Services, 2004; Wald & Hackshaw, 1996). Research also indicates that individuals who begin to smoke early in life are more likely to die from smoking related diseases than those who do not (CDC, 2005; Krainuwat, 2005; Chassin, Presson, Rose, & Sherman, 1996; Pierce & Gilpin, 1996).

Smoking has been found to be negatively correlated with physical activity (Kaczynski, Manske, Mannell, & Grewal, 2008; Wald & Hackshaw, 1996), which inadvertently affects the bones and the joints thus increasing the risk of developing conditions such as rheumatoid arthritis and osteoporosis (Costenbader & Karlson, 2006; Benson & Shulman, 2005; Hoidrup, Prescott, Sorensen, Gottschau, Lauritzen, Schroll et al., 2000). Furthermore, since research indicates that physical activity and lung dysfunction are related those who smoke have a higher risk of developing conditions related to lung function decline (Garcia-Aymerich, Lange, Benet, Schnohr, & Anto, 2006). For example, smoking leads to an increased rate of respiratory problems such as shortness of breath, wheezing, and pneumonia (Moore, Augustson, Moser, Budney, 2005). Smokers also have been found to have higher resting heart rates than non-smokers (Corrigall, Zack, Eissenberg, Belisto, & Scher, 2001). Consequently, the hearts of individuals with higher resting heart rates have to work harder to circulate the
blood and oxygen rich nutrients through the system, which can increase the risk for cardiovascular events (Guyton & Hall, 2000).

It is also generally agreed that the ingredient in tobacco which has the biggest and most adverse effect on one’s physical health is nicotine. Research also addresses the physical consequences of nicotine addiction. Research indicates that nicotine has depressant and stimulant properties (Lujic, Reuter, & Netter, 2005). Lujic et al., (2005) report that the use of nicotine has complimentary effects. On the one hand, consumption of nicotine produces a sedative effect. More specifically, it has been found that there is an increase in one’s level of serotonin (Lujic et al., 2005). Nicotine also stimulates the nucleus accumbens of the brain almost immediately. Thus, the individual tends to experience a pleasurable sensation (Lujic et al., 2005). More precisely it is generally agreed that when nicotine initially enters the system of an individual he or she feels good or experiences a euphoric mood. Therefore, individuals seem to use nicotine both because of its ability to suppress negative emotions and to induce euphoria.

Psychological Correlates of Smoking

Various psychological factors also seem to contribute to an individual’s decision to continue smoking. One such factor is centered on psychological cues. For example, people often smoke when alcohol is consumed or when experiencing negative affect such as depression (Epstein, Sher, Young, & King, 2007; Burns et al., 2004). Because smokers associate smoking with various activities and emotions, each time they are exposed to environmental cues or experience negative emotions associated with smoking, the individual has an urge to smoke (Baumann & Sayette, 2006; Erblich &
Bovbjerg, 2004; Lazev & Herzog, 1999). In other words, these activities and negative emotions trigger smoking behaviors. Research further indicates that there is a relationship between depressive symptoms and negative health behaviors such as smoking (Clark et al., 2006; Burns et al., 2004; Parrott & Garnham, 1998). For example, a study conducted by Clark et al., found that an adolescent’s decision to engage in two or more negative health behaviors such as smoking and drinking was predictive of their reports of depressive symptoms and psychological distress. Another study conducted by Burns et al., further supported the relationship between tobacco use and depression. Results of this study indicated that adolescents’ baseline depression scores on the Perkins Adolescent Risk Screen were related to tobacco use and violent behaviors. Smoking has also been shown to be related to other psychological mood states such as anxiety, frustration, anger and dysphoric mood (Shiffman et al., 2006; Hebert, 2004; Kipnis & Miller, 2003; Pomerleau, Marks, Pomerleau, 2000; American Psychiatric Association, 1994). Taken together, the aforementioned psychological and physical effects of smoking make smoking cessation difficult (Pomerleau, Pomerleau, Marks, 2000).

Blacks and Smoking

Although the incidence of smoking among Blacks has consistently been found to be lower than that of smoking Whites (Daza et al., 2006), smoking related conditions and diseases such as cancer, strokes, cardiovascular disease, and hypertension appear to have more adverse long-term health consequences for Blacks (Baquet, Horn, Gibbs, & Greenwald, 1991; CDC, 2005). For example, an epidemiological study found that smoking related cancers such as lung and esophageal cancer were higher among
Black men even though they had significantly lower rates of heavy smoking than Whites (Bhandari, Sylvester, & Rigotti, 1996). Furthermore, based on previous years’ findings the mortality rates attributed to smoking related disease is often higher among Blacks compared to Whites (Bhandari et al., 1996; American Cancer Society, 2005). These findings further highlight the importance of identifying any possible variables that might predict or effect smoking behaviors among Blacks.

Some researchers argue that one possible contributor to higher rates of smoke related health conditions among Blacks might be attributed to greater difficulty in achieving smoking cessation (Daza et al., 2006). Possible factors researchers have identified that might explain the difficulty with smoking cessation include the increased use of menthol cigarettes among Blacks (Daza et al., 2006; Mustonen, Spencer, Hoskinson, Sachs, & Garvey, 2005; Giovino et al., 2004), slower metabolization of nicotine (Daza et al., 2006; Perez-Stable, Herera, Jacob III, & Benowitz, 1998) and increased alcohol consumption which is inversely related to smoking abstinence (Strecher & West, 2006; Daza et al., 2006).

**Theories of Smoking**

Several theories have been proposed to explain the etiology of smoking among adolescents in general. Perhaps the most popular theory which has been offered to explain this behavior is that adolescents both begin and continue to smoke due to peer pressure (Roberts, 1997). More specifically, this theory argues that adolescents begin using mind altering substances, including tobacco, as a way of gaining acceptance among those individuals with whom they identify. Thus according to this essentially
social learning theory, whether an adolescent will use drugs is contingent upon whether those individuals with whom that person associates with also uses drugs. Among those who do associate with others who use drugs, the type of drugs used and preferred is contingent upon the drugs used by the majority members of their group (Roberts, 1997). Indeed, research has argued that not only are adolescents most likely to begin smoking if other adolescents with whom they identify begin smoking, but the brand they select tends to be consistent with the brand smoked by other members of their peer group (Roberts, 1997). Despite the popularity of this theory, it has several limitations. First, such an approach cannot easily account for why individuals continue to smoke across situations. Second, it cannot easily explain why individuals continue to use tobacco when their peer group changes. It also fails to explain why individuals often smoke alone opposed to always smoking with a group of his/her peers.

Another approach to explaining the use of smoking and other substance use among adolescents has maintained that this age group often times engage in rebellious behavior and the use of drugs is one way they attempt to rebel. There is some support for this model. Luthar & Ansary (2005) selected a group of inner city adolescents composed of Whites, African Americans, Asians, and Hispanics. These participants were given measures of delinquency, academic performance and substance use. A cluster analysis indicated that, regardless of socioeconomic level or gender, individuals who had lower levels of academic performance also had a higher incidence of behavioral problems, drug use, and school truancy. The authors point out that over time, many adolescents grow into adulthood at which point, many of these behaviors tend to dissipate. Thus, it is possible that many undesirable behaviors seen among
adolescents are simply manifestations of rebellious behaviors (Luthar & Ansary, 2005). However as with the peer pressure model, this theory cannot account for why individuals continue to use tobacco when they are not attempting to assert themselves. Other individuals who may also be in the process of attempting to establish their independence do not use any form of chemicals. Additionally, this model is limited in its ability to account for why individuals specifically elect to use tobacco rather than some other substance as a form of protest.

Another common explanation of the cause of smoking is that individuals become addicted to nicotine. This chemical is generally considered to be the addictive substance in cigarettes and other tobacco products (National Institute on Drug Abuse [NIDA], 2004). Given that nicotine has both depressant and stimulant effects and that it stimulates reward pathways, it is a highly addictive substance (Lujic, Reuter, & Netter, 2005). Thus, the individual tends to experience a pleasurable sensation, while also experiencing the sedative effect of nicotine. In other words, when nicotine initially enters the system of an individual he or she feels good or has a euphoric mood. Therefore, individuals use nicotine both because of its ability to suppress negative emotions and induce euphoria. Overall, the nicotine addiction theory suggests that smoking is a manifestation of psychophysical cravings. While this theory might account for why individuals continue to smoke, this model seems to be limited to explaining why individuals tend to smoke more frequently depending on their emotional state. Further, while this theory may explain why individuals continue to smoke, a major limitation of this approach is that it cannot account for why individuals initially begin to smoke.
The stress syndrome is another popular theory that has been proposed to explain the etiology of substance use, including smoking (Todd, Chassin, Presson, & Sherman, 1996; Ng & Jeffery, 2003; Ludman et al., 2002; Wills, Sandy, & Yaeger, 2002; Kassel, Stroud, Paronis, 2003). This theory proposes that individuals oftentimes begin to use mind-altering chemicals either as a way of relieving or preventing uncomfortable feelings and thoughts. In other words, at least some individuals begin to smoke to reduce their level of tension. Also this model would seem to suggest that an individual has the highest probability for smoking a cigarette when they are experiencing pressure or stress. Although this model may not be able to explain all possible contributors to causes of smoking, it does seem to offer a plausible explanation of why some individuals begin to smoke and when they are most likely to smoke.

Overall, it is possible that all of the previously described theories may at least be partially accurate. That is, an individual may begin and continue to smoke for a variety of different reasons or contribute to smoking behavior. It is also possible that one theory may be more applicable to one population than another. Assuming that it is possible that different groups of people may begin to smoke for different reasons, it is possible that a major contributor to smoking among Blacks may be due to an increased experience of stress. There is some indication that stress among Blacks may be a contributor to accounting why Blacks begin and continue to smoke.

Several definitions of stress have been proposed. Perhaps the oldest and most common model states that stress may be thought of as psychological tension placed upon an individual due to situational demands (Selye, 1976). This model places emphasis upon the situational events contributing to discomfort within the person.
Another, more recent conceptualization defines stress as an event which an individual experiences that threatens his or her physical or psychological health (Schneiderman, Ironson, & Siegel, 2005). Further, the event is considered to be more stressful if the event is perceived by the individual as being uncontrollable, unpredictable, and requires the person who is the recipient of the stress to make significant changes in their lives (Schneiderman, Antoni, Saab, & Ironson, 2001; Schneiderman et al.). This second approach then, focuses upon the effects that stress has upon an individual. Therefore it is possible that both the tension and threat approaches are accurate but simply describe different aspects of the stress syndrome. These two models, if taken collectively, would suggest that stress is due to some external variables that has an adverse effect on the physical and psychological health of an individual.

Within the clinical field extreme stress is usually referred to as post traumatic stress disorder (PTSD) by the American Psychiatric Association (2000). Brady, Back, & Coffey (2004) argue that in addition to social, genetic, and biological factors, what is now commonly referred to as post traumatic stress disorder (PTSD) places a person at risk for using various forms of drugs. Indeed these authors point out that approximately 36%-50% of those seeking treatment for substance abuse disorders meet the criteria for PTSD. These authors proceed to speculate that the use of drugs is an attempt at self-medication. Building upon the ideas of Brady et al., Seidler and Wagner (2006) take this a step further and argue that continuous exposure to less traumatic events can also have a cumulative effect upon the psychological and physical health of an individual. That is, an individual may begin to experience psychological difficulties as a result of
being exposed to continuous stress as well as being the recipient of an over-whelming level of stress.

Various studies have found a relationship between prolonged, severe stress and psychological health. According to Keane, Marshall, and Taft (2006) individuals exposed to a stressful situation may experience a variety of psychological difficulties. These may consist of aggression, depression, emotional numbness, feelings of detachment, decreased interest in activities, and difficulty controlling anger. Some other symptoms which have been found to be associated with stress include: difficulty falling or remaining asleep, irritability, and difficulty concentrating (Thomas, Bardwell, Ancoli-Israel, & Dimsdale, 2006; Carlson, 2001; Smith & Reise, 1998; Motowidlo, Manning & Packard, 1986).

The use of cigarettes by some individuals may represent a form of self-medication to reduce anxiety, and some of the other uncomfortable emotional difficulties just described. There is extensive empirical support for this possibility. This may be an especially plausible explanation since, as already indicated, smoking seems to have a relatively immediate effect and both reduces feelings of discomfort and simultaneously produces pleasurable sensations (Lerman et al., 1996; Delfino, Jamner, & Whalen, 2000), while increasing well-being (Jamner, Shapiro, & Jarvik, 1999). For example, Repetto, Caldwell, & Zimmerman (2005) conducted a longitudinal study of 850 adolescents who were in 9th grade at the start of the study. Participants were interviewed and completed self-report questionnaires about drug use, sexual behavior, depression, and substance use, including cigarettes. Results of this study suggested that changes in reported depressive symptoms predict changes in cigarette use over
time. The results further indicated that increases in depressive symptoms predicted more cigarette use (Repetto, Caldwell, & Zimmerman, 2005). Similar results have been reported by Ng & Jeffery (2003). These investigators explored the relationship between stress and unhealthy behaviors including diet, exercise, alcohol use, and smoking behaviors using a sample of working adults. Results of this study revealed that higher levels of stress were correlated with less frequent exercising, higher fat intake, increased smoking, and less confidence with regard to their ability to quit smoking and refrain from smoking when stressed. The authors concluded that stress motivates people to engage in unhealthy behaviors to relieve stress and experience pleasure.

Racial Discrimination

Discrimination has been conceptualized as a form of stress. Terrell, Terrell and Taylor (1980) have defined discrimination as treating an individual or group of people differently based on some irrelevant variable. Although most scholars agree with this definition of discrimination, several different ways in which discrimination can be manifested have been proposed. Whitley and Kite (2006) suggests that there are four basic levels of discrimination. These include interpersonal discrimination, organizational discrimination, and hate crimes. These authors describe the former as individual discrimination of one individual toward another. The second is viewed of as the creation of laws, policies, or practices of an organization, institution, educational system, or justice system which result in different outcomes for members of different groups. In contrast, Taylor (1980) has suggested that racism is best conceptualized as being viewed of as occurring by an individual or institutional, overt or covert, or manifested attitudinally or behaviorally. According to this theorist, it may not always be possible to
link an individual to discriminating practices, nor point to a specific behavioral pattern, which might be indicative of racial discrimination. McKenzie (2002), using the health industry as an example, agrees with the Taylor model. This author suggests that minority group members are often placed at a disadvantage due to either or both institutional racism or individual racism. Further, this racism can be overt or covert. Stated differently, the racism can be either obvious or masked.

Whitley and Kite (2006) states that discrimination consists of behaviors directed toward another person based totally or primarily upon a person’s group membership. Using an essentially psychoanalytic model, Helms and Cook (1999) proposed that individuals who discriminate against others have a relatively under-developed ego and that as the ego develops they begin to develop a tolerance for others. This model has been described in some detail by Ponterotto, Utsey and Pederson (2006). Helms and Cook also suggest that individuals holding prejudicial attitudes tend to be unsure of themselves and avoid a discussion of issues pertaining to racism, which is referred to as the contact stage. Under typical circumstances that individual begins to realize that discrimination does exist and at that point the person enters the disintegration stage. During this stage the person experiences anxiety and guilt about their racist attitudes. Apparently to avoid confronting their racist attitude, the person re-entrenches into a more racist position. At this point, the person has entered a third stage referred to as the reintegration stage, which is defined as a period during which the person becomes intolerant of some individuals who are not part of their ethnic group. Ultimately, the person begins to realize that members of his or her ethnic group have behaved inappropriately toward others in the past and attempts to distance themselves from
members of their ethnic groups who have behaved in biased ways toward others. At this point this model states that the person has now entered the so-called pseudo independence stage. The final three stages have been labeled the immersion, emersion, and autonomy stages. During these stages the individuals seeks accurate information, embracing Whites (e.g.) who accept members of other cultural groups, and engage in humanistic activities respectively.

Less complex models of discrimination have been proposed by others. Terrell and Terrell (1999) have suggested a functional approach to racism. These authors have proposed that racism tends to occur relatively frequently in the lives of Blacks and members of other minority ethnic groups (Terrell & Terrell, 1999). In many instances those who are the target of discrimination do not experience its highly debilitating effects. Therefore, these theorists propose that another dimension, which must also be taken into consideration, is the extent to which a racist event is disturbing to the recipient of racism (Terrell & Terrell, 1999).

It should be noted that several authors have argued that the concept of race has no biological meaning since individuals vary in a variety of different ways including skin color, hair texture, and body shape (Helms, Jernigan & Mascher, 2005). Thus, some individuals who might be categorized as being Black or African-American might not perceive or recognize that they have been discriminated against. Clarke, Anderson, Clark, and Williams (1999) have argued that members of one’s own racial group as well as members from another ethnic group can discriminate against an individual. Further, individuals from different racial groups can perceive themselves as being discriminated against as a function of the ethnic groups with whom one identifies. Thus, depending
upon one’s ethnic identity, that person may experience the typical psychological and physical symptoms commonly observed in individuals who have been discriminated against (Clarke et al., 1999).

Regardless of the source or type of discrimination most scholars agree that racism has an adverse effect upon the behavior, psychological abilities, and health of those who are discriminated against based upon irrelevant variables including skin color, gender, or cultural variables. Further, the literature indicates that racial discrimination is relatively common, occurs in a variety of different situations in a variety of different ways against Blacks and has been directed toward members of the Black community regardless of their age, gender, educational, or socioeconomic class. Further, although numerous models of discrimination have been proposed, all agree that racial discrimination may be defined as treating a group of individuals differently based upon their skin color (Terrell, Terrell, & Taylor, 1980). In most instances racial discrimination consists of the adverse treatment of individuals who are members of that racial group (Terrell et al., 1980).

Several scholars have suggested that racial discrimination continues to be rampant in this country. For example recently Darling, Bogal, Carell, Murphy, and Sanchez (2006) pointed out that the United States has a long, on-going history of discrimination toward people of color regardless of their age, occupation, educational level, or geographical location. Others agree with these authors and provide empirical data to support their claim. Massey and Fischer (2006) analyzed data from the National Longitudinal Survey consisting of nearly 4,000 Black students entering college. It was found that some Black students from all areas of the country had lived in segregated
neighborhoods. Those who were raised in segregated neighborhoods were less prepared academically and had more interpersonal and social problems. These authors conclude that the reasons for these discrepancies are because Black neighborhoods and school systems are often ignored by governmental and funding sources. In another study Franklin-Jackson and Carter (2007) administered an assessment technique designed to measure racism to Black students as well as a measure designed to assess the extent to which respondents were experiencing psychological distress. A significant relationship was found between these two variables. Based upon these findings, students do seem to be experiencing considerable distress which may be related to racism.

Racism has also been found among individuals who are members of what is generally considered to be prestigious occupations. In one study Liebschutz, Darko, Finley, Cawse, Bharel and Orlander (2006) interviewed 22 Black medical residents. It was found that Black residents perceived themselves as being punished more harshly and viewed themselves as being isolated from their White counterparts. Most of the participants in this study also reported experiencing self-doubt. In a study funded by the National Research Council, Foster, Mitchell, and Fienberg (2002) explored whether racism continues to exist within neighborhoods. Using a paired sampling method, Black and White applicants living in the northeast, applied for a rental property within at least 6 hours of each other. Approximately, 25% of the Black applicants were denied an opportunity to rent the same property compared to 13% of the White applicants.

In addition to the educational and housing system, there is also empirical data which suggests that racial discrimination remains common in the legal system. Leiter
and Leiter (2002) surveyed legal rulings on racial and gender discrimination. These researchers' investigations concluded that, if the number of favorable rulings in employment discrimination cases is used as an index to estimate the extent to which racial discrimination exists, prejudice towards Blacks continues to be relatively common. Hurwitz and Peffley (1998) argued that a relatively recent method, which has been used to disguise racism by Whites consist of now presenting themselves as racial conservatives. These authors describe this as an attempt on the part of non-minority group members to either stem or eliminate laws which make it illegal to discriminate against others. To support this contention, these authors point out that when questions related to race are asked of members who hold a racist conservative position, they tend to describe Blacks in negative ways. Thus, racism may be even more common than indicated when covert forms of racism are also taken into consideration.

Other investigators have also reported findings which suggest that racial discrimination is common in the legal system. Goodey (2006) describes ethnic or racial profiling as police stopping someone for questioning or searches on the basis of their ethnic or racial appearance that does not seem to be due to either their behavior or because they match an individual description. Based upon his survey of the literature, Blacks and Hispanics tend to be stopped significantly more frequently than Whites in a given place, at a given time. This author argues that research should be conducted to explore what racial profiling does and does not do for individuals of different groups. Crow, Fox and Hartman (1998) developed a measure consisting of scenarios for describing individuals varying in gender, ethnicity, and sexual orientation. Five hundred forty eight full time employees were asked to read the scenarios. Then they were asked
to select the individual from the various descriptors they would prefer to hire. The authors found that Whites were hired more often than Blacks. The case illustrations least likely to be selected were Black homosexual males.

Similar instances of racial discrimination have been reported by others. Bothwell, Pigott, Foley and McFatter (2006) asked college students to serve as mock jurors to make decisions regarding liability and damages in response to a case of sexual harassment. These investigators found that jurors recommended lower awards to Blacks harassed by Whites and higher damage awards to Whites who were harassed by Blacks.

Racism also seems to be directed toward individuals regardless of their educational level. Diamond (2006) looked at the academic achievement of Black high school students residing in the suburbs of Washington, D.C. as well as an affluent area of Ohio. He found that in relation to White students, Blacks had lower grade point averages, lower performance on standardized tests, and a smaller percentage of the Blacks students who graduated enrolled in college. It was also found that Black students were least likely to be entered into advanced placement courses and most likely to be viewed by teachers as having lower cognitive abilities as compared to their White counterparts. The author concluded that institutionalized racism continues to exist in the educational system.

Research indicates that there is a link between racial discrimination and patterns of smoking. For example, a study conducted by Guthrie, Williams, Boyd and Kitchner (2002) explored the relationship between smoking habits and perceptions of racial
discrimination among Black American adolescent females. Results indicated that 52% of participants reported that they had experienced racial discrimination. Participants’ perceptions regarding daily experiences of discrimination strongly correlated with the participants’ smoking habits, indicating the probability that discrimination induced stress (Guthrie et al., 2002). Further supporting the relationship between smoking behavior and discrimination is an article that examined the role segregation played in cigarette smoking among Blacks. This study found that the prevalence of smoking was much greater among Blacks raised or who currently reside in racially segregated neighborhoods than those who were raised or currently live in neighborhoods not racially segregated (Landrine & Klonoff, 2000). Vazsonyi, Pickering, and Bolland (2006) sampled 2,867 high-risk African American adolescents living in an inner city. These authors found that adolescents without adequate parental supervision had higher incidences of delinquency, drug usage, and sexual acting out behaviors. A study examining the relationship between racial discrimination and minor’s access to cigarettes further supports this argument. This study found that non-Black clerks in predominantly Black neighborhoods sold Black children cigarettes significantly more often than they sold White children cigarettes. Because of the findings, authors concluded that racial discrimination expressed by non-Black store clerks plays an important role in children's access to cigarettes (Landrine, Klonoff, & Alcaraz, 1997).

A study conducted by Inzlicht, McKay, and Aronson (2006) specifically explored whether being exposed to racially suggestive events was emotionally arousing. The authors found that Black students with high levels of racial stigma sensitivity compared to those with low level of racial stigma sensitivity, when exposed to situations which
suggested negative stereotypes of Blacks, had more difficulty concentrating on academic tasks as well as more difficulty motivating themselves to complete their schoolwork. It was also found that both Black male and female students who anticipated being exposed to additional racially stereotyping situations reported having more difficulty controlling their physical behaviors and emotions in addition to their capacity to concentrate. While these investigators did not specifically explore whether anger was an emotion these students anticipated having difficulty controlling, it seems plausible that this is possible since both racial discrimination and anger are so prevalent in the Black community.

Anger

A surprising limited amount of attention has been devoted to theorizing about and studying contributors to and the consequences of anger. Based upon what is available, the following has been proposed. Anger has recently been defined as a syndrome of relatively specific feelings, cognitions, and physiological reactions that are linked with an urge to injure some target (Berkowitz & Harmon-Jones, 2004). According to these theorists, anger tends to be aroused when an individual is prevented from the attainment of an important goal or an individual is blocked from attaining a goal because of an external agent's improper action (Berkowitz & Harmon-Jones; Ledwig, 2006). Thus according to these theorists, in order for an individual to experience anger, that person must be upset with someone or something and feels justified for experiencing this emotion.
While anger is viewed as having emotional, cognitive, and physiological components, it is generally classified as an emotion. However since it is generally accepted as having a cognitive component, according to Phelps and Sharot (2008) events which arouse feelings of anger tend to become entrenched in one’s memory. Thus, if a thought arises which was once related to an experience which once produced anger that memory can again result in similar behaviors.

Ruys and Stapel (2008) agree with Phelps and Sharot (2008). However Ruys and Stapel (2008) also add that the original thought that was associated with the arousing event need not always be available to one’s awareness. Therefore these authors also consider this emotion to be a trait. To explore this proposal, undergraduates were exposed to repulsive scenes which had been found to elicit fear and anger. Other scenes which had been found to be highly correlated with the original scenes also elicited fear and anger. Responses to follow up questionnaires indicated that participants were not able to articulate why the new scenes also produced similar emotions.

A common manifestation of anger is aggression (Fraznoi, 2003; Berkowitz & Harmon-Jones, 2004). Overall, Berkowitz’s and Harmon-Jones argue that aggression is a more general example of the relationship between unpleasant stimuli and negative effect, which includes unpleasant emotions and feelings such as anger, anxiety, and annoyance (Berkowitz & Harmon-Jones, 2004).

Tamir, Mitchell, and Gross (2008) propose that anger is an unpleasant emotion. They suggest that exactly which behavior one may engage in when they are angered is
contingent upon whether that person anticipated a confrontational situation or not and that those who anticipated continuing exposure to anger arousing situations would become angrier in preparation to respond to the situation. In a recent study these authors found that individuals provoked by anger arousing music would perform better on aggressive games than those who were not angry. Thus, under some circumstances a person can increase the extent to which they experience an unpleasant event such as anger if it is useful for a person’s well-being.

*Black Anger and Racial Discrimination*

Several theorists have argued that anger is common in the Black community and that anger has its origins in being discriminated against (Grier & Cobbs, 1968). Law (1998) argues that Blacks need to understand the importance of channeling anger induced by racism in a strategic manner that will have a lasting effect. Law (1998) does this by discussing how anger has begun to penetrate various levels of the Black culture.

Law (1998) also states that anger is relatively common in the Black community regardless of gender, socioeconomic class or educational level. He explains this by discussing how Black professionals are reaching America’s glass ceiling and responding by starting their own companies. He then discusses the flaw of the Black community, which is taking a passive rather than active stance. He points out that Blacks discuss what needs to be done (i.e. build stronger communities, elect Black officials) but unfortunately the ideas remain ideas. He also discusses how society deems Blacks as being more prone to violence. However, he points out that Blacks have never strategically planned an act of violence against Whites. In fact, he reports
that most premeditated acts of violence against Whites come from Whites (e.g. the Oklahoma bombing). He explains how Blacks who commit violent acts are viewed as monsters, while Whites who commit such acts are viewed as being angry. Furthermore, society quickly seeks to understand what brings an individual to the point of committing an act such as the Oklahoma bombing, while rarely if ever seeking to understand acts of violence by Blacks. The author also discusses how society uses civil rights language to justify their feelings about issues such as affirmative action. He describes this behavior as discussing race in ways that make Whites feel less guilty for their feelings or behaviors. He further discusses how much of White wealth and successful businesses are a product of racism and special privileges given to Whites. For example, during segregation there was a law which made it illegal for Black owned cabs to pick up fares outside of the predominately black section of Pittsburgh. The author explains how this law protected White owned cabs from fair competition. After making it clear that society has a distorted view of Black anger, he offers a solution. He argues that the future of African Americans will be defined as Blacks channel their anger in ways that count. He suggests that Blacks develop strategies and take meaningful action. He argues that Blacks must also eliminate negative thinking and the “take low” philosophy, which encourages Blacks not to have big dreams (i.e. being an upper level executive), or to walk a fine line when we do accomplish our goals. He reemphasizes that “success begins with the words “yes I can.” More recently, Edmonson, Conger, & Conger, (2007) speculated that that individuals with clinically significant levels of anger are likely to have difficulty communicating in social settings. Blacks identified as having low verses high trait anger were given several questionnaires including the State Trait Anger
Expression Inventory and the Social Skills Inventory and two mood assessment measures designed specifically for this study. The results indicated that individuals with high trait anger scored less favorably on the social skill inventory emotional expressivity subscale.

Other researchers have reported somewhat similar findings. Lester (1999) collected data from a small sample of Black men and Black women who have attempted suicide. Results indicated that participant age, level of intelligence and gender was unrelated to the 8 hostility scales administered. However those measures assessing participants’ perception of the extent to which they believed they had been the recipients of oppression and discrimination were correlated with the hostility and anger measures.

As demonstrated in a recent study, Black anger may not always result in on-going overt continuous hostility and aggression. Using Black research assistants Lee (2002) conducted 75 semi-structured detailed interviews with African American, Korean, and Jewish merchants living working in New York City and Philadelphia. It was also found that for the most part the relationship between the merchants and their predominately Black customers was generally one of cooperation and that overt conflicts between the ethnic groups were relatively uncommon. However regardless of ethnic group membership, most participants indicated they are still felt at risk for being targets of animosity by members of another ethnic group at any time. The author explains this phenomenon as being due to feelings inequality. According to Lee (2002) merchants and customers of different ethnicities for purposes of cooperation, try to maintain civility can easily be transformed into racial conflict. However at times of extreme stress,
physical outbursts may occur. The same phenomenon may be applicable to smoking behavior. That is, individuals may not be habitual smokers but more prone to smoke under tense or stressful circumstances.

The assassination of Martin Luther King Jr. aroused various feelings among people of all ethnicities. Some argued that this historical tragedy lead Blacks to believe that nonviolent tactics were ineffective. Moreover some argued that his assassination lead to increased militancy among Blacks, whether violent or nonviolent. The author of this article sought to examine this assumption.

Using this line of reasoning Meyer (1969) conducted a survey of Blacks living in impoverished areas of Miami. Ironically, this survey was completed two weeks prior to the assassination of Martin Luther King. A sub-sample consisting of 186 original participants were re-interviewed several months following the assassination. A control group was also developed, which consisted of 55 people who had not been interviewed before. The topics included conventional militancy, attitudes toward violence, and separatism (the degree to which participants believe in segregation). However, there was no increase in the number of people who reported that they were ready to take their anger to the streets. Some of the findings were people were less optimistic and more pessimistic about the future. This latter finding may also have some implications for the present study. That is, although a person may consciously consume substances which may be harmful, they continue to do so if they believe the future is hopeless.

This anger, generated by continuous exposure to discrimination, can apparently be noticed at a relatively young age. In fact, according to White (1984), many Blacks
begin to recognize that they or members of their ethnic group are being discriminated against during early adolescence. Yet these adolescents tend to have few socially acceptable outlets in which they can express their frustration and anger. As a result, the vast majority suppresses his/her anger and frustration in an attempt to exhibit socially acceptable behaviors. It is generally agreed that Blacks are more likely to be exposed to racial discrimination than members of many other cultural and ethnic groups. Furthermore, anger, resulting from on-going racial discrimination, has long been recognized to exist among Black Americans and has been precipitated by discrimination in a variety of situations (Cleveland, 2003; Feagin, Early, & McKinney, 2001; Terrell & Terrell, 1999; Grier & Cobbs, 1971; Grier & Cobbs 1968).

There is a growing body of data that suggests that anger produces feelings of discomfort and has an adverse effect upon the health of Blacks. In particular, there is a significant amount of research that shows a link between racial discrimination and cardiovascular disease, which is directly linked to increased hypertension risk (Krieger & Sidney, 1996, Booth-Kewley & Friedman, 1987; Matthews, 1988; Rozanski, Blumenthal, & Kaplan, 1999). Most of these findings have reported a relationship between what is probably racial discrimination induced anger and physical disorders, especially hypertension (McClelland, 1979; Thomas, Nelesen, & Dimsdale, 2004) and coronary artery disease (Diamond, 1982; Guyll, Matthews, & Bromberger, 2001). For example, one study examined the relationship between racial discrimination, unfair treatment, and cardiovascular reactivity amongst Black American and European women. The participants were asked to imagine they had been wrongfully accused of shoplifting and subsequently they were required to defend themselves. Following their defense, each
participant was given a 10-item mistreatment questionnaire in which they indicated what
they believed to have been the primary reason for their mistreatment. Results indicated
that Black American women who attributed the mistreatment to racial discrimination had
greater cardiovascular reactivity overall (Guyll et al.). This relationship was not found
among European Americans. This finding supports the notion that discrimination may
adversely affect cardiovascular health among Blacks (Guyll et al.).

Some efforts have been made to develop techniques to prevent or attenuate this
form of anger. Abernathy (1995) highlights the projection of anger in cross racial
interactions during psychotherapy and discusses three essential anger management
skills necessary in a cultural competency training setting. First the trainer/therapist must
create an atmosphere that makes the client feel safe and gives him permission to share
his racism related anger. Abernathy suggests that this can be done by emphasizing
importance and appropriateness of anger expression, acknowledging the difficulty that
arises when openly addressing anger, and emphasizing that anger is a major part of
cross racial interactions. Next the therapist must promote an environment of
acceptance by not reacting defensively to the client’s comments, indicating that the
client’s perspective is accepted, despite the possible offensive nature of the comments.
Abernathy explains that this can be done by openly acknowledging the difficulty of
discussing issues of race, facilitating disclosure through personal disclosure, and by
modeling a nonjudgmental attitude as trainees are disclosing their feelings. Finally, the
trainer/therapist must model control, which inadvertently assists the client in gaining
control of his anger as his distorted views are challenged when he is introduced to the
possibility that some of his anger is related to stereotypes.
It seems reasonable to expect that individuals are more likely to demonstrate anger responses and other behaviors related to discrimination when they are in the presence of individuals who discriminate. Steffen, McNeillly, Anderson and Sherwood (2003) examined whether perceived racism and anger inhibition were significantly related to the blood pressure of African Americans after demographic and socioeconomic variables were controlled for. African American men and women between the ages of 25 and 44 years, who had blood pressures less than 180/100, did not take any heart medication or use tobacco products participated in this study. All participants wore a blood pressure monitor during work hours, which was programmed to take blood pressure measurements four times during the workday and while sleeping. All participants completed a perceived racism scale, which assesses experiences with racism in a variety of situations including on the job, in academic settings, and public settings. These investigators reported that higher levels of perceived racism were significantly related to increase blood pressure during the working hours. Additionally both perceived racism and anger inhibition were positively correlated with blood pressure and perceived racism was significantly correlated with anger inhibition but not anger expression. Altogether, results indicate that both perceived racism and anger inhibition may contribute to hypertension and hypertension related diseases among African Americans but they are independently related to ambulatory blood pressure.

Recently a former U.S. Surgeon General stated that at least in some instances variables related to one’s culture might place an individual at a higher risk for some forms of mental illness or behavioral problems than members from other cultural groups (U.S. Department of Health and Human Services, 2001). As previously stated, although
nicotine is often classified as a stimulant, it can also act as a depressant (Lujic, Reuter, & Netter, 2005). Thus, among other things, a sufficient quantity of nicotine can have a sedating effect upon the emotions of most individuals. It is, therefore, possible that at least some Black adolescents will smoke for reasons which are related to on-going discrimination and its concomitant anger. That is, there is a possibility that without being aware of it, in order to cope with widespread and continuous exposure to racism and the resultant anger, some Black adolescents will become angry and engage in essentially a form of self-medication consisting of smoking behavior.

Although there is some evidence suggesting a relationship between racial discrimination and smoking among Blacks, exactly why Black adolescents who have been discriminated against are at risk for smoking remains unclear. That is, exactly why individuals who are discriminated against actually engage in deleterious behaviors has not been systematically explored. One possible reason may be due to, among other things, discrimination provokes feelings of anger. Thus it may be that individuals engage in and continue to use tobacco as a way of minimizing this anger. This study will explore whether, at least among some Black teens, smoking is related to anger associated with ongoing exposure to racial discrimination.
Purpose

Overall based upon a review of the literature, it has been found that males tend to smoke more than females and males begin smoking at a younger age relative to females. It has also been found that individuals who are experiencing stress tend to smoke more than individuals with lower levels of stress. Racism has been conceptualized as a form of stress which seems to affect one’s thought processes, emotions, and behaviors. Therefore, it seems reasonable to predict that individuals who report being exposed to discrimination should smoke more than those who believe they have not had extensive exposure to racism. Given findings from previous research and what would be predicted based upon theory, this study proposes to attempt to replicate and expand upon what has been found to be related to stress and smoking. More specifically, this study explored whether, among Blacks, gender is predictive of smoking, age is predictive of smoking, and racial discrimination generated anger is related to smoking.
CHAPTER II

METHOD

Participants

This study analyzed a sub-set of data from a larger project whose purpose was to explore whether a relationship existed between racial discrimination induced anger among Black adolescents and various forms of substance abuse and delinquent behavior. The sample for this study consisted of 134 Black adolescents who were attending a recreational center on a relatively regular basis. The total sample used for this study consisted of 44 males and 90 females. The average age of the participants was 16.40 ($SD = 1.14$). The males had a slightly higher average age ($M = 16.45$, $SD = 1.11$) than their female counterparts ($M = 16.38$, $SD = 1.16$). The average score on the Black Anger Measure (BAM) for the total sample was 119.56 ($SD = 38.05$). The males had a higher average BAM score ($M = 126.05$, $SD = 44.16$) than the female participants ($M = 116.39$, $SD = 34.50$).

Measures

All participants were given the following inventories: an extensive background questionnaire specifically designed for this study, the modified Cut Down, Annoyed, Guilty, Eye-Opener questionnaire (CAGE), and the Black Anger Measure (BAM) (Terrell, Miller, Foster, Watkins, 2006).

All participants were also given a background information questionnaire that was specifically designed for the purposes of this study. In addition to obtaining information
about each participant’s age, ethnicity, gender, parental income, and whether the respondent was currently employed, several other questions were asked regarding their estimation of the average number of cigarettes they smoked on a daily basis, the duration of their smoking behavior, the extent to which they smoked more when they were angry. A copy of the questionnaire has been included in Appendix A.

All participants were also given the CAGE screening questionnaire. This measure was originally designed to detect an individual’s dependence on or abuse of alcohol (U.S. Preventative Services Task Force [USPSTF], 2006). For purposes of this study, the CAGE screening questionnaire was modified to measure the participants’ abuse of or dependence on smoking. The CAGE screening questionnaire was utilized because it is the screening measure most often used for detecting addiction disorders, appeared to be less threatening than other addiction measures, had good reliability and validity among various populations, and is often used as the foundation for the development of other addiction measures (USPSTF, 2006; Crowe, Kramer, Hesselbrock, Manos, & Bucholz, 1997; Morton, Jones, & Manganaro, 1996; Lairson et al., 1992). The inventory consists of 4 items requiring a yes or no response. These items address an individual’s feelings regarding his/her need to cut down on smoking, annoyed feelings experienced because of people’s criticism of his/her smoking behaviors, feelings of guilt surrounding his/her smoking behavior, and a tendency to smoke a cigarette to calm his/her nerves. Each question to which the participant responded yes was allocated one point. Based on previous research discussing the CAGE, cut off scores have varied from 1-4 points in order to detect dependency (Malet, Schwan, Boussiron, Aublet-Cuvelier, & Llorca, 2005). Research also reported that a
positive reply to any of the first three items on this screening questionnaire should initiate further investigation by clinical employees (Malet et al.). A copy of the modified CAGE questionnaire has been included in Appendix B.

The BAM was designed to identify the extent to which Blacks are angry at Whites as a result of being discriminated against. This inventory consisted of 52 items that used a seven-point Likert-type scale ranging from strongly agree to strongly disagree. Individuals with higher scores were considered angrier as a result of being exposed to racial discrimination. The item-to-total score correlations on the BAM ranged from .39 to .61. This inventory has demonstrated a two-week test-retest reliability estimate of .87 and a Cronbach’s alpha coefficient of .91. This measure was also found to significantly correlate with a measure of perceived racism (.76) as well as a measure of the extent to which Blacks mistrust Whites (.67). The BAM is a copyrighted instrument and thus could not be reproduced in this document. Sample statements from this measure were as follows: "I get angry when police stop me for no good reason," and "It infuriates me when I hear Whites state that Black children are not smart."

Procedure

The recreational center is actually part of a multi-purpose center. It is one of four centers located in the city where this data was collected. The four centers are located in the sectors of municipal corners of the city to serve each quadrant. Each center has its own board of directors. The board was appointed by the city and is responsible for setting center rules, and approving all activities conducted at its site. This study was approved by this center’s board of trustees.
The center offers a variety of services for different groups of people including periodic medical screening sessions, educational classes, and after school and weekend activities for children and adolescents. The center is non-profit and most of the activities at the center are organized and operated by volunteers. The centers do have sports competitions in basketball, softball, and track. Each sport is responsible for all of its expenses including travel, equipment, and uniforms. Participants for this study consisted of adolescents who were members of one of these teams or groups.

Coaches, directors of recreational centers, and youth organizations in the northeast were used to recruit participants for this study. Participants were told that by completing the questionnaires, they could help earn $500.00, which could be used by their organization to purchase or replace equipment and supplies. Participants were told that at least 150 adolescents were needed and that in addition to completing the questionnaires themselves, they could recruit friends and relatives to help meet the goal. Supervisors from each group of adolescents administered the questionnaires. Neither the supervisor nor participants were aware of the purpose of the study. A total of 177 questionnaire packets were distributed. Of these, 161 questionnaire packets were actually filled out. Of the questionnaires returned, 27 did not provide sufficient information to include their responses in the data analysis. Another 16 individuals were excluded from the data analysis because they did not self identify themselves as being exclusively Black or African American. After the informed consent was obtained, all participants completed the Background Information questionnaire followed by the BAM and modified CAGE.
CHAPTER III

RESULTS

Preliminary Findings

In order to further explore the relationships between the criterion and predictor variables, Pearson’s Product Moment correlation analyses were performed. In order to obtain additional information regarding some of the findings, separate correlations were calculated for males and females. Table 1 contains all correlations, means, and standard deviations for male participants and Table 2 contains all correlations, means, and standard deviations for female participants. Table 3 contains all correlations, means and standard deviations for the overall sample.

Males

Among males, there were no significant correlations among the predictor and criterion variables. Results are presented in Table 1.

Females

Among females, age and the participants’ modified Cut down, Annoyed, Guilty, Eye Opener questionnaire (CAGE) scores were positively correlated \( (r = .29, p < .01) \). However, there were no significant correlations between age and the criterion variable SMOKE. Results are presented in Table 2.
Overall Sample

A summarized version of all correlations, means, and standard deviations is presented in Table 3. Analyses further indicated that scores on the Black Anger Measure (BAM) were also significantly correlated at the $p < .05$ level with the SMOKE variable, which indicates the total number of cigarettes participants reported smoking on a daily basis ($r = .20$). Results further indicated that gender was also significantly correlated with the criterion variable SMOKE ($r = -.59$, $p < .01$).

Age of the participant was found to be significantly correlated with the modified CAGE, which indicated the extent to which participants reported being dependent on cigarettes ($r = .26$, $p < .01$). Results also revealed that age was positively correlated at the $p < .05$ level with scores on the BAM ($r = .18$, $p < .05$).

In summary, Pearson Product Moment correlations were used to explore the relationship between the independent and dependent variables among each group separately. No significant correlations were found among the male participants. Among female participants, age was significantly correlated with the modified CAGE. Among the overall sample, age was found to be significantly correlated with the modified CAGE and scores on the BAM. Results also found that both gender and the BAM were significantly correlated with the criterion variable SMOKE.

Overall Hierarchical Regression Results

The results were analyzed using a hierarchical regression analysis. Hierarchical regression is a statistical analysis in which the researcher dictates how many predictors to enter into the model and the order in which they are entered. By using hierarchical
regression the researcher is able to control for the effects of other variables. In other words, each predictor variable is evaluated by the amount of additional variance that is accounted for after it is entered into the model, thus allowing the researcher to measure the predictive power of each variable (Tabachnick & Fidell, 2001).

Hierarchical regression is generally used because the researcher has a theoretical basis underlying their method of entering the variables. Since my interest was in examining the possible unique contribution of anger to cigarette smoking, for all regressions, I initially removed the potential contribution of gender, followed by age as predictors of cigarette smoking since those variables have consistently been found in the past to be predictive of smoking behaviors. In the first step, I extracted the contributions of gender to the outcome variable. In the second step I removed the contribution of age to the outcome variable. After removing these two predictor variables I explored whether scores on the Black Anger Measure (BAM) were related to the outcome variables.

Hierarchical regression procedures were used to examine the relationship between smoking behaviors and anger among Black adolescents that has been provoked by racial discrimination. Gender, age and scores on the BAM served as the predictor variables for all regression models. The cigarettes participants estimated they smoked on a daily basis (SMOKE) and scores on the modified CAGE screening measure (mCAGE) were the criterion variables in this study.
Two hierarchical regressions were utilized to analyze the relationship between the predictor and criterion variables. The significance level was set at .05 for a predictor variable to enter the regression model.

In the first hierarchical regression model, SMOKE served as the criterion variable. A significant overall regression was found between the predictor variables and the number of cigarettes participants reported smoking on a daily basis ($R = .589$; $R^2 = .347$; Adjusted $R^2 = .332$; $F(3, 130) = 23.04$, $p < .001$). Within this model gender was the only significant predictor ($R = .565$, $R^2 = .319$; Adjusted $R^2 = .314$; $F(1, 132) = 61.74$, $p < .001$). Neither the participant’s scores on the Black Anger Measure (BAM) or age added any predictive power to the model. To further explore the results of the hierarchical regression, independent sample t-tests were computed. Results revealed that male participants ($M = 14.93$, $SD = 9.10$) reported smoking a significantly higher number of cigarettes on a daily basis than their female counterparts ($M = 3.96$, $SD = 5.82$), $t(61) = 7.05$, $p < .001$.

The participant’s modified CAGE scores served as the criterion variable in the second hierarchical regression model. A significant overall regression was found between the predictor variables and the extent to which participants were dependent on smoking ($R = .305$, $R^2 = .093$; Adjusted $R^2 = .069$; $F(3, 115) = 3.92$, $p < .01$). Within this model age was the only significant predictor ($R = .304$, $R^2 = .092$; Adjusted $R^2 = .077$; $F(2, 116) = 5.51$, $p < .01$). Prior to additional analyses, participants ages 13 to 14 were excluded because of the small subset of participants in this group ($n = 7$). To further explore the results of the hierarchical regression, an independent sample t-test was computed. Results revealed that younger participants ($M = .11$, $SD = .36$) reported
significantly lower modified CAGE scores than older participants ($M = .33, \ SD = .62$) $t(106) = -2.50, p < .05$. Results of the hierarchical regressions for all models are available in Table 4.

Supplementary Analysis

Reason for Smoking Question

The Black Anger Measure is a generic indication of the extent to which Blacks are angry. It does not necessarily indicate why Black anger is related to cigarette smoking or any other type of substance use. Therefore, we included one general question which specifically asked “Do you tend to smoke when you are angry or upset?” A correlation was conducted between the BAM and the question related to anger and smoking. A value of .32 ($p < .01$) was found indicating that these two measures are significantly related. A second correlation was run between this question and smoking behaviors and a value of .60 ($p < .01$) was found between these two variables.
CHAPTER IV

DISCUSSION

The major purpose of this study was to explore whether a relationship existed between racial discrimination induced anger and smoking behaviors among Black adolescents. It was hypothesized that gender, age, and anger produced by both indirect and direct exposure to racial discrimination would predict the number of cigarettes smoked on a daily basis and the participant’s dependency on cigarettes.

Gender was a significant predictor of smoking behaviors. Males were found to smoke more than females. This finding was consistent with what has been reported in other investigations (National Survey on Drug Use and Health, 2005; Krainuwat, 2005; Johnston, O’Malley, & Bachman, 1998; U.S. Department of Health and Human Services, 1994). Although research has consistently found that males smoke more than females few well accepted theories have been proposed to explain this finding. Our study used a sample of African American high school students. One possible reason that gender was related to smoking behavior could be because Black males are more susceptible to being discriminated against. This speculation is consistent with previous research (Vazsonyi, Pickering, & Bolland, 2006; Landrine, Klonoff, & Alcaraz, 1997).

Age was not predictive of smoking behaviors in that older adolescents smoked more than younger adolescents. This finding was inconsistent with what has been found in previous research (American Lung Association, 2003; Krainuwat, 2005; Chassin, Presson, Rose, & Sherman, 1996; Pierce & Gilpin, 1996).
Also consistent with what was predicted Black anger was found to correlate with smoking behavior. Recently a former U.S. Surgeon General stated that at least in some instances variables related to one’s culture might place an individual at a higher risk for some forms of mental illness or behavioral problems than members from other cultural groups (U.S. Department of Health and Human Services, 2001). Other researchers have reported similar findings (Daza et al., 2006; Baquet, Horn, Gibbs, & Greenwald, 1991; CDC, 2005; Bhandari, Sylvester, & Rigotti, 1996; American Cancer Society, 2005; Mustonen, Spencer, Hoskinson, Sachs, & Garvey, 2005; Giovinco et al., 2004; Perez-Stable, Herera, Jacob III, & Benowitz, 1998; Strecher & West, 2006).

Contrary to what was predicted, gender did not serve as a significant predictor of participants’ dependency on cigarettes as measured by the modified Cut Down, Annoyed, Guilty Eye-open questionnaire (CAGE). However, age was found to be predictive of dependency as measured by the modified CAGE.

Consistent with the prediction of this study age served as a significant predictor of dependency on cigarettes. That is, older adolescents were more likely to meet criteria for dependency on cigarettes than younger adolescents. This finding was consistent with previous research (National Survey on Drug Use and Health (NSDUH), 2005; Krainuwat, 2005; National Household Survey on Drug Abuse (NHSDA), 2001).

Although age was not predictive of frequency of smoking, age was predictive of a person’s level of dependency. This finding was also consistent with what has been reported in the past (National Survey on Drug Use and Health (NSDUH), 2005; Krainuwat, 2005; National Household Survey on Drug Abuse (NHSDA), 2001). This was
not a surprising finding since previous research has shown that the longer a person smokes the more they tend to smoke and smoking is habit forming (U.S. Department of Health and Human Services, 2004; CDC, 2005; Krainuwat, 2005; Chassin, Presson, Rose, & Sherman, 1996; Pierce & Gilpin, 1996).

As previously stated a former U.S. Surgeon General stated that at least in some instances, variables related to one’s culture might place an individual at a higher risk for some forms of mental illness or behavioral problems than members from other cultural groups (U.S. Department of Health and Human Services, 2001). Moreover, although nicotine is often classified as a stimulant, it can also act as a depressant (Lujic, Reuter, & Netter, 2005). Thus, among other things, a sufficient quantity of nicotine can have a sedating effect upon the emotions of most individuals. Thus, the significant relationship between the Black Anger Measure (BAM) and smoking behaviors combined with the stimulant and depressant properties of nicotine may make it possible that at least some Black adolescents will smoke for reasons, which are related to on-going discrimination and its concomitant anger. That is, there is a possibility that without being aware of it, in order to cope with widespread and continuous exposure to racism and the resultant anger, some Black adolescents will become angry and engage in essentially a form of self-medication consisting of smoking behavior.

The aforementioned statement by the Surgeon General is of grave importance to this study since he indicated that racial discrimination might have a negative effect on one’s psychological health as well as one’s tendency toward behaviors that are problematic. However, there is currently no underlying construct that explains why people who are discriminated against engage in these negative behaviors. It was
proposed that people who are discriminated against engage in deleterious behaviors because they are justifiably angry. In fact recent research by Phelps and Sharot (2008) indicated that emotions are embedded into an individual’s memory and as a result specific events may trigger the recollection of a thought that causes the individual to reexperience the same emotion at a different time. Assuming that this theory is valid, it seemed reasonable to assume that subsequent encounters or even the mere sight of someone who is of the same race as individuals who have previously engaged in discriminatory behaviors may trigger the emotion of anger. More importantly, if an individual is caught at the wrong time that anger may be released in a socially unacceptable manner such as physical aggression.

Although research indicates that anger is a common manifestation of aggression (Berkowitz & Harmon-Jones; Fraznoi, 2003), because of continuous experiences with discrimination, some Blacks may believe that the manifestation of aggression may have more adverse consequences for them. Assuming that at least some Blacks believe this, one can argue that Blacks experience a specific type of anger (racial discrimination induced anger) because of their unique experiences with racial discrimination. In other words, Black anger results from exposure to events or situations that a Black individual perceives as discriminatory. Because Blacks experience this specific type of anger and fear negative repercussions, it seems plausible to argue that they may respond in a fashion deemed as socially acceptable. In other words, given the possibility that anger expression is not the most socially acceptable method of dealing with one’s emotions, particularly for Blacks, it is possible that Blacks suppress their anger by engaging in behaviors that are viewed as more socially acceptable. Thus, in order to avoid adverse
consequences (e.g. school suspensions, petty crimes, prison) some Blacks who have been discriminated against may choose to smoke in order to cope with the anger experienced and prohibit themselves from reverting to aggressive behaviors.

Given the significant correlation between racial discrimination induced anger and participants’ reports of smoking more when they are angry, of particular interest to this study is the failure of age to predict a participants’ tendency to smoke more when they are angry. This information is contrary to the results of previous research where age was found to be a significant factor in smoking behavior associated with emotional stress (Orlando, Ellickson, & Jinnett, 2001). For example, the aforementioned study conducted by Orlando et al., which consisted of a sample of individuals ranging from 16 to 23 years of age, reported that emotional distress increases tobacco use as participants got older. Thus, since anger is emotionally distressing one might expect to find similar results. One explanation for the differences in the results of the present study compared with the aforementioned study was that depression as opposed to anger was the emotion measured. However, given that depression has been shown to be linked with anger (Newman, Gray, Fuqua, 1999), it is likely that it may also coexist with feelings of suppressed racial discrimination induced-anger. Therefore, an avenue of future research might be to examine the link between racial discrimination induced anger and depression.

Contrary to what was predicted, Black adolescents who obtained higher scores on the BAM did not report smoking more cigarettes on a daily basis than those who obtained lower scores on the BAM. In other words, racial discrimination induced anger did not serve as a significant predictor of the number of cigarettes the participants
reported smoking on a daily basis. This finding contradicted research by Guthrie, Young, Williams, Boyd and Kitchner, 2002, which reported a strong correlation between the smoking behaviors of Black female adolescents and their perceptions of daily discrimination encounters. In an attempt to explain this finding it was important to note that the mean BAM scores ($M = 119.55$, $SD = 37.89$) for the total sample were markedly similar to the average BAM scores ($M = 119.76$, $SD = 38.08$) obtained in another study conducted by Terrell et al., which also sought to explore the relationship between the BAM and substance abuse but generated significant findings (2006). Therefore, it was possible that the participants in this study consistently experienced racial discrimination induced anger, but used other sources as a conduit to alleviate the stress experienced as a result of racial discrimination. If this explanation is accurate, scores on the BAM may not be a useful predictor of smoking behaviors among adolescents in this study.

Although the BAM did not serve as a significant predictor of smoking frequency, there was a significant positive correlation between smoking frequency and the participants’ BAM scores, indicating that as BAM scores increased the number of cigarettes smoked on a daily basis also increased. More precisely this indicates that there is some relationship between smoking frequency and anger resulting from both direct and indirect exposure to racial discrimination among Black adolescents. Since a significant correlation was found in this study, it was important to address why racial discrimination induced anger did not serve as a significant predictor of smoking frequency. One explanation may be attributed to the relationship between exercise and stress (Edwards, 2006). More precisely, because the participants in this study regularly
attended a recreation center, where exercise is a major activity, it may have served as an outlet to reduce the discrimination related stress they experience.

It was also predicted that Black adolescents who scored higher on the Black Anger Measure (BAM) would be more likely to be dependent on cigarettes, as measured by the modified Cut Down, Annoyed, Guilty, Eye Opener questionnaire (CAGE), compared to those who obtained lower BAM scores. Contrary to the prediction, the BAM did not serve as a significant predictor of participants’ dependency on cigarettes. One explanation may be attributed to this study’s use of a modified version of the CAGE. Given that the CAGE was designed as a screening measure for alcohol abuse or dependency on a clinical population, it is likely that the modified CAGE was not an accurate detector of dependency on cigarettes for the adolescent population. Although the modified CAGE may not have been an accurate detector of dependency in this age group, research indicates that a positive response to any one of the four items within the CAGE was significant enough to warrant further investigation by clinical professionals (Malet, Schwan, Boussiron, Aublet-Cuvelier, & Llorca, 2005; Mayfield, Mcleod, & Hall, 1974). The fact that 17% of the participants responded affirmatively to at least one of the four items could suggest that at least some Black adolescents were currently at a stage in their life which could be a prelude to developing an addictive pattern of smoking dependency.

Limitations of this Study

Overall, the results of this study were mixed. The inconsistency of these findings may have been indicative of some general issues which should be considered in similar
studies in this area. Among those were that the outcome variables may have been too specific. More precisely cigarette smoking was measured. However, the primary active ingredient used is nicotine. This chemical can be ingested in a variety of ways including cigars, snuff, tobacco chewing, and although unlikely in this population, nicotine patches. Therefore, it is possible that Black adolescents could still receive the effects of nicotine by ingesting nicotine in other forms. Further research may find a relationship between anger as well as the other predictor variables had a survey between these variables been used in this study and nicotine use been considered.

Another possibility was that, as mentioned earlier, anger is generally considered to be a trait. However, whether and the extent to which anger, like a trait or emotion, is manifested as a behavior is contingent upon the extent to which situational or external variables occur, which are sufficiently emotionally arousing to produce the corresponding behaviors. It is possible that youth in this sample may not have been exposed to a sufficient amount of emotionally arousing situations causing consistent rates of smoking behaviors.

Finally, it should be kept in mind that this was essentially a correlational study. It is possible that smoking could sensitize a person to unfair treatment and increase their anger level. Therefore, no causal connection should be drawn between the predictor and outcome variables.

There are a number of limitations that may account for the failure of racial discrimination induced anger to predict smoking behaviors in some of our models. First, methodological limitations must also be taken into account. It is important to consider
the region from which the sample was extracted. As previously mentioned, all participants were adolescents who were recruited from a recreation center in the Northeast. Given that it is generally agreed that racism is more prevalent in the South, perhaps individuals who live in the Northeast do not experience as much racial discrimination induced anger as those in the South.

There were limitations related to the outcome measures utilized for this study must also be taken into account. This study used a modified version of the CAGE to measure the participants’ dependency on smoking. Initially the CAGE was developed as a screening instrument for alcohol dependency. Given that the results from this study were consistent with the results of a study conducted by Terrell, Miller, Foster and Watkins (2006) which found that racial discrimination induced anger was not a significant predictor of alcohol abuse or dependency, it is likely that the CAGE was not an accurate detector of dependency for adolescents or that individuals in this sample had not smoked long enough to acknowledge dependency. In view of the limitations of this study, extreme caution should be used when making generalizations to a wider population.

Implications for Future Research

Results of this study may have theoretical and applied implications that may call for further exploration through future research. At the theoretical level, a major assumption of this study was that discrimination, anger, and dysfunctional behaviors are related. This study explored the relationship between these variables and one population which had frequently been discriminated against. However, it is possible that
any group of individuals who are frequently discriminated against may also engage in unhealthy behaviors including smoking as a vicarious outlet for any immediate or pent-up anger. It is suggested that research be conducted exploring whether a relationship between anger attributable to being a member of a particular ethnic group or gender may also be related to higher levels of smoking relative to other groups.

At the research level, some support was found for the relationship between racial discrimination induced anger and smoking behavior among Black adolescents. However as was stated earlier, research indicated that the active component of smoking is nicotine, which is a highly addictive chemical. However, no effort was made in this study to partition out the effects of nicotine. It is possible that more consistent findings may have been obtained had the effects of nicotine been taken into consideration. Therefore it is recommended that future research which attempts to explore the relationship between anger and smoking attempt to control for the possible effects of nicotine. Somewhat related, this study only explored the effects of anger upon smoking. It is possible that Blacks who are angry may use another form of tobacco produce including chewing tobacco and snuff as alternative ways of channeling their anger.

Findings from this study may also have some implications for intervention. At an applied level, it may be important for mental health professionals, who are generally White, to acknowledge that racial discrimination still exists and make reasonable efforts to educate themselves and create an environment that is less threatening to Blacks. If Blacks feel they have a safe environment to discuss these types of concerns they may be less apprehensive about seeking therapy to deal with these problems. Given that an individual’s first encounter with racial discrimination and smoking generally occurs
during adolescence it is also important to create socially acceptable outlets for Black youth to deal with issues surrounding discrimination. If at a younger age they feel they have a safe environment to discuss their feelings surrounding racial discrimination and other related topics, as they get older they may be more likely to continue utilizing mental health care services.
Table 1

*Male Means, Standard Deviations, and Intercorrelations between All Measures*

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Age</td>
<td>--</td>
<td>.21</td>
<td>.23</td>
<td>.13</td>
</tr>
<tr>
<td>2. Smoke(^a)</td>
<td>--</td>
<td>.05</td>
<td>.25</td>
<td></td>
</tr>
<tr>
<td>3. mCAGE(^b)</td>
<td>--</td>
<td>-.13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. BAM(^c)</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>16.45</td>
<td>14.93</td>
<td>.32</td>
<td>126.05</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>1.11</td>
<td>9.10</td>
<td>.60</td>
<td>44.16</td>
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</tbody>
</table>

*Note.* \(^a\)The number of cigarettes participants reported smoking on a daily basis; \(^b\)modified CAGE scores (mCAGE), indicating extent to which participants are dependent on smoking; \(^c\)Black Anger Measure, * p < .05. ** p < .01. p < .001.
Table 2

*Female Means, Standard Deviations, and Intercorrelations between All Measures*

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
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<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Age</td>
<td>--</td>
<td>.09</td>
<td>.29**</td>
<td>.20</td>
</tr>
<tr>
<td>2. Smoke&lt;sup&gt;a&lt;/sup&gt;</td>
<td>--</td>
<td>.11</td>
<td>.09</td>
<td></td>
</tr>
<tr>
<td>3. mCAGE&lt;sup&gt;b&lt;/sup&gt;</td>
<td>--</td>
<td></td>
<td>.16</td>
<td></td>
</tr>
<tr>
<td>4. BAM&lt;sup&gt;c&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td>--</td>
</tr>
<tr>
<td>Mean</td>
<td>16.38</td>
<td>3.96</td>
<td>.14</td>
<td>116.39</td>
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<tr>
<td>Standard Deviation</td>
<td>1.16</td>
<td>5.82</td>
<td>.41</td>
<td>34.50</td>
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</table>

Note. <sup>a</sup>The number of cigarettes participants reported smoking on a daily basis; <sup>b</sup>modified CAGE scores (mCAGE), indicating extent to which participants are dependent on smoking; <sup>c</sup>Black Anger Measure, * p < .05. ** p < .01. p < .001.
Table 3

*Overall Means, Standard Deviations, and Intercorrelations between All Measures*

<table>
<thead>
<tr>
<th>Variable</th>
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<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
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<td>1. Gender</td>
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<td>-.03</td>
<td>-.59**</td>
<td>-.17</td>
<td>-.12</td>
</tr>
<tr>
<td>2. Age</td>
<td>--</td>
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<td>.26**</td>
<td>.18*</td>
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<tr>
<td>3. Smokeᵃ</td>
<td>--</td>
<td>.16</td>
<td></td>
<td>.20*</td>
<td></td>
</tr>
<tr>
<td>4. mCAGEᵇ</td>
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<td></td>
<td></td>
<td>.04</td>
</tr>
<tr>
<td>5. BAMᶜ</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
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<td>16.40</td>
<td>7.56</td>
<td>.20</td>
<td>119.56</td>
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<tr>
<td>Standard Deviation</td>
<td>--</td>
<td>1.14</td>
<td>8.73</td>
<td>.49</td>
<td>38.05</td>
</tr>
</tbody>
</table>

*Note.* ᵃThe number of cigarettes participants reported smoking on a daily basis; ᵇmodified CAGE scores (mCAGE), indicating extent to which participants are dependent on smoking; ᶜBlack Anger Measure,  * p < .05.  ** p < .01.  p < .001.
Table 4

Hierarchical Regression Analyses and Results for Total Sample on Smoking Behaviors

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>aSmoke</th>
<th></th>
<th>bM.CAGE</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>SEB</td>
<td>β</td>
<td>B</td>
</tr>
<tr>
<td>Step 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>-10.38</td>
<td>1.32</td>
<td>-.57***</td>
<td>-.15</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>.76</td>
<td>.53</td>
<td>.10</td>
<td>.13</td>
</tr>
<tr>
<td>Step 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>-10.21</td>
<td>1.32</td>
<td>-.56***</td>
<td>-.12</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>.59</td>
<td>.54</td>
<td>.08</td>
<td>.13</td>
</tr>
<tr>
<td>cBAM</td>
<td>.03</td>
<td>.02</td>
<td>.14</td>
<td>.00</td>
</tr>
</tbody>
</table>

Note. aSmoke: $R^2 = .33$ for Step 1. $\Delta R^2 = .01$ for Step 2; $\Delta R^2 = .02$ for Step 3. bM.CAGE: $R^2 = .02$ for Step 1. $\Delta R^2 = .06^*$ for Step 2; $\Delta R^2 = .00$ for Step 3. aSmoke = Average number of cigarettes participants reported smoking on a daily basis; bM.CAGE = Modified version of the CAGE, which was used to measure participants' dependency on cigarettes; cBAM = Black Anger Measure; * $p < .05$; ** $p < .01$; *** $p < .001$. 
Participant Number: ______________________________

Instructions: This form provides the researchers with basic information about you. Please complete this questionnaire by placing the appropriate coded number in the blank space preceding each item. For example, if you are a female, you will place a "1" in the blank space for sex, if you are a male, you should use the number "2." Please complete the form to the best of your abilities. Please respond to all items.

Sex (Circle one of the following):  1) Female      2) Male

Race: (Circle one of the following):      1) White          2) Hispanic      3) African-American
4) Asian-Pacific American

Age at last birthday (in years):_____________

I am a (Circle one of the following):  1) 9th grade 2) 10th grade  3) 11th grade
4) 12th grade  5) some college

I am: (Circle one of the following): 1) Single, never married   2) Married   3) Separated
4) Divorced      5) Widowed

Category in which your family's annual gross income falls (If you don't know, just guess):  1) Less than $5,000       2) $5,000 to $25,000       3) $25,001 to $50,000;
4) $50,001 to $75,000;   5) $75,001 to $100,000;   6) over $100,000

Please fill in your approximate age when you smoked your first cigarette_______

Please fill in the number of cigarettes you smoke on a daily basis______
APPENDIX B

MODIFIED CAGE SCREENING INSTRUMENT
1. Have you ever felt that you should cut down on your smoking?

2. Have other people annoyed you by criticizing your smoking?

3. Have you ever felt guilty about smoking?

4. Have you ever smoked a cigarette to steady your nerves?
REFERENCES


Human Services, Substance Abuse and Mental Health Services Administration, Office of Applied Studies.


Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health.


