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**The Influence of Personal Recollections of Racial/Ethnic Discrimination
on Cigarette Craving**

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by

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For my grandmother, Ollie D. Dawson, who was the inspiration for this research.

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Abstract

The Influence of Personal Recollections of Racial/Ethnic Discrimination on Cigarette Craving

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African American and Latino individuals smoke equal to or less cigarettes than White individuals. However, African American and Latino smokers have a higher smoking-attributable mortality rate, experience more smoking-related diseases later in life, and have lower cessation rates than White smokers. Furthermore, ethnic minority smokers are more likely to report more experiences of racial/ethnic discrimination. The present study examined the role of racial/ethnic discrimination in cigarette craving among African American and Latino smokers, and between men and women. African American and Latino cigarette users ($N = 34$) were included if they endorsed smoking at least 100 cigarettes in their lifetime and currently smoking some or most days. Participants completed two writing tasks and pre- and post-task measurements of the Questionnaire of Smoking Urges-Brief (QSU-B) and the negative affect subscale of the Positive and Negative Affect Schedule (NA-PANAS). Participants were randomized into one of two groups. The first group completed a writing task to describe their most distressing experience of racial/ethnic discrimination they have experienced, and then completed an academic/job-related failure writing task describing their most distressing job- or

academic-related failure. The second group first completed the academic/job-related failure writing task and then the racial/ethnic discrimination writing task. Participants were asked to rate the retrospective level of distress of both experiences, and then completed an exit interview to describe their perspectives of the study. A series of ANOVAs were completed to assess differences in the QSU-B and NA-PANAS over time and across gender groups. Cigarette craving measured by the QSU-B significantly increased over time; however, there were no other significant differences between post-task scores and between gender groups. Participants' written responses were qualitatively analyzed resulting in significant differences between the two writing tasks. The racial/ethnic discrimination writing task was significantly more associated with social themes and resulted in significant differences within socioeconomic status and gender groups. The academic/job-related failure writing task was significantly more associated with negative affect themes. The present study concluded that recollection of racial/ethnic discrimination experiences did not influence cigarette craving more than academic/job-related failure experiences.

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Chapter 1. Introduction

1.1. Cigarette Use

1.1.1. Overview

In 2014, nearly 17% of adults aged 18 years or older smoked cigarettes, amounting to an estimated 40 million adults in the United States (Centers for Disease Control and Prevention, 2015). Although smoking has declined from around 21% to 17% since 2005, more than 16 million Americans live with a smoking-related disease (Centers for Disease Control and Prevention, 2015), and four of the five leading causes of death are smoking-related (Heron, 2016). Smoking has been causally linked to 15 types of cancer, diabetes, and numerous respiratory diseases, cardiovascular diseases, perinatal conditions and complications, and other negative health outcomes (U.S Department of Health and Human Services, 2014). As such, smoking is by far the leading cause of preventable disease and death in the United States and is a significant burden to public health (Centers for Disease Control and Prevention, 2015).

1.1.2. Health Disparities

Approximately 17.5% of African American adults are cigarette smokers, compared to 18.2% of White adults (Centers for Disease Control and Prevention, 2015). However, despite a slightly lower smoking prevalence rate, African American individuals in the United States have a significantly higher smoking-attributable mortality rate and exhibit double the years of potential life lost from using tobacco compared to White individuals (Liu et al., 2013). African Americans who smoke use fewer cigarettes per day but are more likely to smoke mentholated cigarettes than the general population (Liu et al., 2013). Mentholated cigarettes have been associated with higher carbon monoxide levels per cigarette, and menthol has been found to increase inhalation and absorption of tobacco smoke toxins (Benowitz, Herrera, & Jacob, 2004). African American

smokers report higher rates of cigarette craving and less craving relief after cigarette use (Carter et al., 2010). Despite the fact that African American smokers initiate smoking at a later age and report a desire to quit smoking at higher rates than White smokers, they are less successful at quitting compared to White smokers (Centers for Disease Control and Prevention, 2015). They are also less likely to seek help for quitting or to use cessation aids (Centers for Disease Control and Prevention, 2015).

The prevalence of cigarette smoking among Latino persons (11.2%) is typically lower than that of White individuals (18.2%) and African Americans (17.5%) (Centers for Disease Control and Prevention, 2015). Both Latino men and women report smoking rates lower than those of their White counterparts (Centers for Disease Control and Prevention, 2015). Cancer, heart disease, and stroke, all of which can be caused by smoking cigarettes, are among the five leading causes of death among Latino smokers (Centers for Disease Control and Prevention, 2015). Those of Puerto Rican descent have the highest smoking prevalence (28.5%) compared to other Hispanic/Latino sub-groups, which is still generally lower than that of White individuals (Centers for Disease Control and Prevention, 2015). Those of Cuban descent have cigarette prevalence rates of 19.8%, followed by Mexican (19.1%) and Central/South American (20.2%). Cigarette smoking is higher among Hispanic adults born in the United States than those who are foreign-born (Centers for Disease Control and Prevention, 2015). This difference in prevalence may highlight substantial differences in determinants of smoking associated with Latino American versus native Latino cultures. Latino smokers are more likely to smoke on a non-daily basis and more likely to be light smokers (i.e., consume fewer than ten cigarettes per day) compared to White smokers (Centers for Disease Control and Prevention, 2015). This less severe smoking pattern is indicative of less physiological dependence on cigarettes, which would lead to

the expectation that Latino smokers should have less difficulty quitting than Whites (Castro, 2015). However, Latino smokers' rates of cessation are similar to those of White smokers (Centers for Disease Control and Prevention, 2015).

15.5% of American males and 13.5% of American females are current cigarettes users (Centers for Disease Control and Prevention, 2015). However, tobacco-dependent women are less likely to initiate abstinence and more likely to relapse than men, highlighting possible higher levels of behavioral dependence than men (Bohadana, Nilsson, Rasmussen, & Martinet, 2003; Xu, et al., 2008). The majority of evidence suggests that female smokers experience greater nicotine withdrawal symptoms than male smokers when trying to quit, exhibiting more severe withdrawal symptoms than males during abstinence (Hogle & Curtin, 2006; Scharf & Shiffman, 2004; Xu, et al., 2008). Female smokers are more consistently surrounded by more smokers in their social environments and more likely to have parents, siblings, and romantic partners that smoke (Bransetter, Blosnich, Dino, Nolan, & Horn, 2012). Sex differences are found for both central and neuroendocrine stress response and self-reported positive affect among men and women during withdrawal, with negative affect being more associated with motivation to use among women (Hogle & Curtin, 2006). However, researchers have highlighted the importance of more consideration of duration and nature of the stressors connected to cigarette use, with consensus towards chronic and longer-lasting periods of stress leading to cessation failures (Hogle & Curtin, 2006; Shiffman, Paty, Gnys, Kassel, & Hickcox, 1996). Ethnic minority women have had less marked reductions in smoking prevalence over time, which might predict greater risks for smoking cessation attempts (Aguirre, et al., 2015). In general, research suggests that ethnic minority women (v. men) endorse greater negative reinforcement and weight control smoking expectancies (Aguirre, et al., 2015).

Despite equal to or lower prevalence rates, smoking-related diseases disproportionately affect both African American and Latino smokers (Centers for Disease Control and Prevention, 2015). Furthermore, females have lower cigarette prevalence rates than males (Centers for Disease Control and Prevention, 2015). However, they exhibit marked differences in cessation attempts and experience greater difficulties managing withdrawal symptoms (Hogle & Curtin, 2006; Scharf & Shiffman, 2004; Xu, et al., 2008). Ethnic minorities who smoke, specifically ethnic minority women, are at risk for developing increased smoking dependence over time and suffer from more smoking-related diseases later in life (Centers for Disease Control and Prevention, 2015; Liu, et al., 2013). Utilizing a social determinant of health approach allows for better understanding of health disparities contributed by cigarette use. Social determinants of health are the social, economic, and physical conditions in the environments, in which people live, which affect health, functioning, and quality of life (Centers for Disease Control and Prevention, 2015). Examining of social determinants of health reveals resources that significantly impact the health outcomes of population groups. Examples of these resources include safe and affordable housing, access to education, public safety, availability of healthy foods, and local emergency/health services (Centers for Disease Control and Prevention, 2015). Social determinants of health explain how groups of individuals experience varying trajectories of health behaviors and health outcomes. These determinants are explained as they pertain to use of cigarettes among Black/African American and Latino/Hispanic smokers.

1.1.3. Determinants of Cigarette Use

Cigarette use is determined by the interplay of a variety of factors that vary by racial/ethnic group. Use of cigarettes is related to feelings of relaxation and contentment when coping with the experiences of stress, anxiety, and depression experienced in-between cigarettes

among smokers (Parrott & Murphy, 2012). These determinants consist of, but are not limited to, individual factors, social factors, environmental factors, cultural factors, and psychosocial factors (Satcher, 1998). Figure 1.1. lists these factors, along with descriptions of their influences. Factors affect African American, White, and Latino people differently (Satcher, 1998). Unfortunately, members of African American and Latino groups are more adversely impacted by these factors than other Americans (Centers for Disease Control and Prevention, 2015). Models of social determinants of health have explained this finding (Centers for Disease Control and Prevention, 2015).

For example, African Americans and Latino individuals are more likely to live below the poverty level. Nearly 33% of individuals living below the poverty level use cigarettes, compared to 26% of those at or above the poverty level and 16% of those at more than twice the poverty level (Centers for Disease Control and Prevention, 2015). In addition, African American and Latino individuals are more likely to have less than a high school education (Centers for Disease Control and Prevention, 2015). Approximately 27% of individuals with less than a high school education use cigarettes, compared to 9% of those who are college graduates (Centers for Disease Control and Prevention, 2015). Psychosocial variables have been largely understudied among members of racial/ethnic minority groups and are explained in the three stages of cigarette use:

1. Initiation: the reasons individuals chose to begin using cigarettes.
2. Maintenance: the reasons individuals continue using cigarettes over time.
3. Cessation: the reasons that individuals stop using cigarettes and abstain.

Smoking expectancy outcomes can be divided into negative consequences (i.e., expectations of smoking's negative effects on health), positive reinforcement (i.e., expectations that smoking

produces positive sensory effects and social facilitation), negative reinforcement (i.e., expectations that smoking produces negative affect reduction), and weight control (i.e., expectation that smoking aids in weight and hunger management) (Aguirre, et al., 2015). Some research findings based on White samples may apply to African American and Latino individuals. However, racial/ethnic groups have different exposure levels, values, and experiences with cigarettes (Satcher, 1998). Specific smoking determinants unique to African American and Latino individuals are discussed further. These determinants begin to distinguish groups of minority smokers from the White majority.

Figure 1.1. Determinants of Cigarette Use.

Types of Determinants	Description
Individual Factors	<ul style="list-style-type: none"> • Perceptions of smoking • Self-Image as a smoker • Influences of peers
Social Factors	<ul style="list-style-type: none"> • Societal norms of smoking • Residential Segregation
Environmental Factors	<ul style="list-style-type: none"> • Cigarette advertising • Economic support
Cultural Factors	<ul style="list-style-type: none"> • Traditional uses of smoking • Acculturation • Historical context of tobacco industry in various communities

1.1.3.1. Smoking determinants of African American individuals.

Tobacco advertisement has been linked to increase in cigarette smoking among African American individuals. Beginning in the 1980s, menthol cigarette advertisement was marketed to this population resulting in a 71% growth in cigarette smoking among African American adolescents (Garrett, Gardiner, Wright, & Pechacek, 2016). Cigarette advertising stimulates cigarette consumption by encouraging earlier initiation of cigarette use, deterring smoking cessation, and increasing daily consumption by serving as an external cue to smoke (Satcher,

1998). Although legislation has decreased the visibility of advertisements in various locations, research has shown that cigarette advertising is still evident in communities in which African American individuals tend to be more concentrated (Garrett et al., 2016). Economic determinants have affected the use of cigarettes among African American individuals, as well. The tobacco industry has economically supported African American communities by directly employing them, supporting social services and civil rights organizations, and contributing to political organizations (Satcher, 1998). Efforts to control the influence of economic support in African American communities has been met with challenges, due to the connection between tobacco companies and community leaders and organizations (Satcher, 1998).

Socially, stressful life events and living environments have been linked to smoking among African American smokers. One important factor that has been studied is residential segregation. The interplay between environmental and social factors (i.e., increased exposure to cigarette advertisement in African American communities due to residential segregation) differentiates African American smokers from White and Latino smokers (Garrett et al., 2016; Satcher, 1998). Residential segregation also contributes to greater exposure to stressors among African American individuals, relative to White individuals (Slopen, et al., 2012). Specifically, psychological work stress, stressful life events in adulthood, and childhood adversity linked to residential segregation are associated with an increased likelihood of smoking among African American men and women aged 34-85 living in a segregated U.S. city (Slopen, et al., 2012). The investigators used a sample of participants from a larger study to examine the influence of social, behavioral, and psychological factors on physical and mental health. The authors then conducted a series of secondary z-tests based on participant responses to surveys measuring smoking status and psychosocial stressors, such as work stress and stressful life events (Slopen, et al., 2012).

Existing literature has explored cultural factors among African American smokers. For example, research has confirmed that low socioeconomic status (SES), low acculturation, and frequent racial discrimination have also been linked to smoking among African American smokers (Borrell et al., 2010; Landrine & Corral, 2016; Landrine, Klonoff, Fernandez, & Roesch, 2006; Slopen, et al., 2012). Smoking is significantly more prevalent among African American adults who are of low SES backgrounds, low acculturation, and those who self-report frequent racial discrimination (Landrine & Corral, 2016). Also, various psychosocial variables associated with African American cigarette use have been identified. Poor school achievement, low levels of assertiveness in refusing cigarettes, and low levels of religiousness have been associated with the onset of cigarette use among African American adolescents (Satcher, 1998). Regarding religion, low levels of religiosity and connection to God were associated with cigarette use (Garrett, Gardiner, Wright, & Pechacek, 2016). Increased stress levels and low levels of occupational prestige were found to be maintaining factors of cigarette use for African American individuals (Satcher, 1998).

1.1.3.2. Smoking determinants of Latino individuals.

Existing literature has explored various determinants of cigarette use among Latino smokers. Environmental influences have been associated with cigarette use among Latinos. Tobacco advertisement has been less prevalent in Latino communities than in African American communities (Garrett et al., 2016), but tobacco companies have used targeted racial/ethnic advertisement at events tied to Latino cultures, such as *Cinco de Mayo* and Mexican rodeo events (Satcher, 1998). Cigarette brand names such as "Rio" and "Dorado" have been advertised and marketed to the Latino community, as well (Centers for Disease Control and Prevention, 2015).

Cultivation and processing of tobacco have played significant roles in Latin American countries, especially when tobacco became a staple crop in the US (Satcher, 1998). Use of surveys done with Latino cigarette smokers has concluded that they have group-specific attitudes that differentiate them from smokers of other racial/ethnic groups (Satcher, 1998). Ways in which tobacco has been used in Latin America has led to culturally specific attitudes protective against cigarette use (i.e., use only during healing practices and facilitation of spirits) (Satcher, 1998). However, many of these attitudes change during the process of acculturation in the United States (Satcher, 1998). Higher levels of acculturation have been associated with increased cigarette use among Latino smokers (Kaplan et al., 2014). Some research has suggested that interplay of acculturative stress and cigarette advertisements may lead to vulnerability towards smoking initiation (Kaplan et al., 2014). Among Latino smokers, acculturation proxies (e.g., nativity, generational status, and language use) have all been associated with smoking norms and current smoking status for Latino smokers (Echeverria, Gunderson, Manderski, & Delnevo, 2015). Latino young adults who report that co-ethnic Latino peers are less accepting of smoking were significantly less likely to be smokers after adjusting for demographic, socioeconomic, and acculturation proxies (Echeverria et al., 2015).

Psychosocial determinants have been important in the initiation and maintenance of cigarette use for Latino smokers. Initiation of cigarette use has been associated with negative self-esteem, lower psychological well-being, and risk taking among Latino seventh-graders (Bettes et al., 2012). Also, high levels of acculturation were associated with initiation among Puerto Rican teenagers (Satcher, 1998). Higher scores on the Center for Epidemiological Studies Depression Scale were associated with maintenance of cigarette use among Latino adults, evidenced in a cross-sectional study of 551 Latinos in San Francisco (Perez-Stable et al., 2004).

Unfortunately, whether or not cigarette use increased as a result of depressive symptoms cannot be concluded from the cross-sectional methodology. Motivation to quit among Latino smokers has been associated with family-related consequences, centered on how parental cigarette use affected their children (Satcher, 1998). Latino smokers have been known to have cigarette consumption patterns that are intermittent (e.g., smoking on a non-daily basis or being light smokers), resulting in inaccurate classifications of smokers (Kristman-Valente & Flaherty, 2016). These inaccurate classifications have made it difficult to understand determinants of smoking representative of Latino smokers (Kristman-Valente & Flaherty, 2016). Also, research has not effectively examined how these determinants affect various Latino subgroups individually (Castro, 2016).

1.1.3.3. Literature Gaps Exploring Determinants

Cultural influences, such as, socioeconomic status, acculturation, acculturative stress, and racial/ethnic discrimination have been associated with cigarette use among African American and Latino individuals (Borrell et al., 2010; Echeverria et al., 2015; Kaplan et al., 2014; Landrine & Corral, 2016; Landrine, Klonoff, Fernandez, & Roesch, 2006; Slopen, et al., 2012). However, in addition to other factors, the role of racial/ethnic discrimination in cigarette use has been understudied (Brondolo, et al., 2015). Authors have noted that conclusions on the relation of gender to smoking-related behaviors in response to discrimination have varied (Brondolo, et al., 2015). Recently, investigators have sought to clarify the relationship between perceived racial/ethnic discrimination to cigarette smoking. These authors have proposed three hypotheses regarding how racial/ethnic discrimination might play a role in cigarette use. Acute exposure to discrimination has been associated with decrements in self-awareness and self-regulation, which has been manifested as increased intentions to use substances. They also postulated that exposure

to discrimination might increase the likelihood that an individual will smoke at all on a given day. Lastly, they hypothesized that discrimination-related stressors might heighten the benefits of smoking, distract attention from psychological barriers to smoking, or reduce resistance to smoking by intensifying the discomfort associated with cravings. The authors concluded that acute race/ethnicity-related stressors may be associated with the decision to smoke at a given time and that chronic stigmatization may be related to smoking frequency. This study highlights a clear gap in the literature and the necessary exploration of racial/ethnic discrimination and cigarette use.

Furthermore, a major gap exists in literature connecting racial/ethnic discrimination and health behaviors and outcomes. Literature exploring the effects of racial/ethnic discrimination on health behaviors has been concentrated in substance use behaviors, not focusing on other health behaviors like exercise and diet (Brodish, et al., 2011). In addition, exploration of racial/ethnic discrimination is based on cross-sectional designs, not allowing for causal ordering between discrimination and health behaviors (Brodish, et al., 2011). In relation to smoking, cross-sectional designs have not led to conclusions whether cigarette use leads to experiencing certain forms of discrimination; or, if experiencing more discrimination leads to engaging in smoking to cope (Brodish, et al., 2011). Cross-sectional designs also omit conclusions accumulated over time (Brodish, et al., 2011). Lastly, the moderating role of gender in the link between racial/ethnic discrimination and health behaviors is limited (Brodish, et al., 2011), specifically connecting discrimination to cigarette use. These considerations and relevant literature will be explored further.

1.2. Racial/Ethnic Discrimination

1.2.1. Conceptualization of Racial/Ethnic Discrimination

The development of racial/ethnic discrimination has detrimental consequences (Ahmed, Mohammed, & Williams, 2007). Racial/ethnic discrimination stems from racism, an organized system of inferior ideology that categorizes population groups into races, assigns a hierarchical status to these groups, and uses ranking to preferentially allocate societal goods and resources to those that are regarded superior. More specifically, racial/ethnic discrimination stems from the development of negative attitudes and beliefs toward racial outgroups, leading to differential treatment of members of these groups by both individual and social institutions. Racial prejudice and discrimination are indicators of racism in society. Categorical beliefs about biological and cultural inferiority are associated with decreased self-worth, diminished self-acceptance, and increased negative self-perception. Authors have posited that internalized racial/ethnic discrimination is associated with maladaptive behaviors and behavioral outcomes, such as psychological dysfunction, poor academic performance, and maladaptive use of harmful substances. Also, racial/ethnic discrimination has been associated with racial/ethnic disparities in residential environments, socio-economic status (SES), and access to goods and services.

Evidence of the relationship between racial/ethnic discrimination and deleterious health outcomes has been reviewed (Ahmed, Mohammed, & Williams, 2007). Non-dominant group members' internalization of society's racist ideologies and negative characterization of their group adversely affects their health. Perceived discrimination is associated with poorer health status and exerts deleterious effects on an individual's health, independent of the material impact of institutional discrimination in causing differential access to goods, services, and environmental exposures. For example, discrimination contributes to decreased access to medical

care and the quality and intensity of medical treatment (Ahmed, Mohammed, & Williams, 2007). The authors noted that perceived discrimination might exert adverse effects on health through pathways common to the impact of psychosocial stressors on health.

Discrimination has been conceptualized as an acute and chronic stressor that contributes to poor health in the same manner that other stressful events do (Ahmed, Mohammed, & Williams, 2007; Corral & Landrine, 2012). Acute psychological stress is associated with increased blood pressure and heart rate (Ahmed, Mohammed, & Williams, 2007). Chronic psychological stress results in neuroendocrine, autonomic, and immune system changes (Ahmed, Mohammed, & Williams, 2007). Furthermore, chronic stress contributes to the body's allostatic load, which is the body's ability to maintain homeostasis and to adapt to stressful events by activating the body's stress response (Ahmed, Mohammed, & Williams, 2007). High allostatic load has been associated with negative health outcomes ranging from cardiovascular disease to cognitive decline (Ahmed, Mohammed, & Williams, 2007). More specifically, some research has concluded that discrimination is associated with adoption of health-damaging behaviors, such as smoking cigarettes and alcohol use (Ahmed, Mohammed, & Williams, 2007; Corral & Landrine, 2012). Studies exploring the relationship between racial/ethnic discrimination and cigarette use among African American and Latino smokers will be accounted.

Perceived racial/ethnic discrimination is associated with higher rates of various types of psychopathology across ethnic minority groups, with medium to large effect sizes (Chou, Asnaani, Hofmann, & Zarate, 2012). However, discrimination affects racial/ethnic groups differently. Hispanics who reported discrimination experiences were more likely to endorse major depressive disorder than African Americans and Asian Americans, attributed to increased feelings of helplessness and low self-esteem (Chou, Asnaani, Hofmann, & Zarate, 2012). African

Americans who reported perceived discrimination were significantly more likely than Asian Americans to endorse posttraumatic stress disorder over their lifetime, highlighting the traumatic nature of these events (Chou, Asnaani, Hofmann, & Zarate, 2012). Controlling for age, sex, race/ethnicity, education, and socioeconomic status, racial/ethnic discrimination is associated with tobacco use, among cigarettes, e-cigarettes, cigars, pipe tobacco, and hookah (Unger, 2018).

1.2.2. Racial/Ethnic Discrimination and African American Smokers

African American individuals' use of cigarettes has been linked to various types of discrimination. The 18-item *General Ethnic Discrimination Scale* measuring perceived ethnic discrimination was developed in 2006 (Landrine, Klonoff, Corral, Fernandez, & Roesch, 2006). The scale was found to be effective in measuring ethnic discrimination, comprised by recent discrimination, lifetime discrimination, and appraised discrimination subscales, for both African American and Latino men and women, aged 18 to 86 (Landrine, Klonoff, Corral, Fernandez, & Roesch, 2006). The authors conducted a series of logistic regressions to determine which subscale was most predictive of the number of cigarettes smoked each day (Landrine et al., 2006). In general, African American adults ($n = 94$) who reported frequent discrimination were more likely to be smokers than their counterparts who report experiencing fewer instances of discrimination, even when controlling for SES (Landrine et al., 2006). Furthermore, the authors concluded that lifetime discrimination, compared to the other types of discrimination measured (i.e., recent discrimination, appraised discrimination), was the best predictor of cigarette smoking among the participants (Landrine et al., 2006).

Other researchers have explored the relationship between racial/ethnic discrimination and cigarette use. Binomial regression analyses were completed to assess the relationship between the *General Ethnic Discrimination Scale* and number of cigarettes utilized in a 30-day-period,

among 274 African American college students drawn from a larger study (Horton & Loukas, 2013). Perceived racial/ethnic discrimination was associated with an increased likelihood of cigarette use among African American smokers (Horton & Loukas, 2013). More specifically, past 30-day racial/ethnic discrimination was predictive of increased likelihood of past 30-day cigarette use, a finding that supports a study conducted by Bennett, Wolin, Robinson, Fowler, and Edwards (2005) (Horton & Loukas, 2013). The authors did not, however, identify which discrimination subscale (appraised, lifetime, or recent) was most predictive of the number of cigarettes used.

Furthermore, African American, Latino, and White smokers were selected from a larger online cross-sectional survey study, based on their cigarette use endorsement (Kendzor D. E., et al., 2014). The authors completed analyses to determine any significant associations between the six-item *Everyday Discrimination Scale* (Short Version) and a single item from the questionnaire, *Cigarette Dependence Scale*, the *Heaviness of Smoking Index*, and the *Brief Wisconsin Inventory of Smoking Dependence Motives*. Of those associations, African American smokers who reported discrimination most endorsed perceived race/ancestry/national origin as the probable reason for discrimination (Kendzor D. E., et al., 2014). Lastly, everyday discrimination was positively associated with the number of years of cigarette smoking for the African American participants, compared to the Latino and White participants (Kendzor D. E. et al., 2014).

In addition, 272 African American and 246 Latino smokers from a larger study on the relation between interpersonal discrimination and ambulatory blood pressure (Brondolo, et al., 2015). Use of cigarettes was not an inclusion criterion in the larger study. However, those who endorsed smoking on the day they participated in the larger study were coded as being a smoker

and included in this study. The relationship between their smoking status and their scores on the 70-item *Perceived Ethnic Discrimination Questionnaire-Community Version* was assessed with a series of logistic regressions. Significant associations with daily smoking status were found for past week discrimination, but not lifetime discrimination, among African American smokers. Past week discrimination was found to be significantly associated with smoking frequency among the participants.

In conclusion, African American smokers have reported more racial/ethnic discrimination experiences than those of the same racial/ethnic group who do not smoke in cross-sectional surveys (Brondolo, et al., 2015; Kendzor D. E., et al., 2014; Horton & Loukas, 2013; Landrine, Klonoff, Corral, Fernandez, & Roesch, 2006). Also, lifetime discrimination (Landrine, Klonoff, Corral, Fernandez, & Roesch, 2006), past month discrimination (Horton & Loukas, 2013), and past week discrimination (Brondolo, et al., 2015; Kendzor D. E., et al., 2014) have all been associated with increased likelihood of cigarette use.

1.2.3. Racial/Ethnic Discrimination and Latino Smokers

Some research has also found that varying levels of racial/ethnic discrimination have been linked with cigarette smoking among Latino individuals. Results from the Kendzor et al. (2014) study reviewed above concluded that the most common type of discrimination event reported by Latino smokers was job-related (Kendzor et al., 2014). Race/ethnicity/nationality was the most commonly perceived reason for both everyday and major discriminatory experiences (Kendzor et al., 2014). Lifetime discrimination was predicted to limit employment, education, and many other significant opportunities for Latinos (Kendzor et al., 2014). Compared to White and African American smokers, Latino smokers exhibited the most significant association of everyday discrimination with nicotine dependence (Kendzor D. E., et al., 2014).

Investigators have concluded that the recent discrimination subscale of the *General Ethnic Discrimination Scale* was most predictive of the number of cigarettes smoked by Latino adults (Landrine, Klonoff, Corral, Fernandez, & Roesch, 2006). Conversely, in a recent cross-sectional study, everyday discrimination was not associated with current smoking status among Latino smokers (Molina, Jackson, & Rivera-Olmedo, 2016). The authors explained that this finding might have been due to differences in how they measured smoking. In their study, smoking was measured by asking participants whether they were current smokers and then grouping those who “had never smoked,” “only smoked a few times,” or was an “ex-smoker” into a category of “non-current smokers.” Typically, classification of smokers is conducted by the number of cigarettes used in a given time period. In summary, recent and everyday discrimination has been associated with increased likelihood of cigarette use among Latino individuals in cross-sectional studies (Kendzor D. et al., 2014; Landrine et al., 2006). However, everyday discrimination was not associated with cigarette use (Molina, Jackson, & Rivera-Olmedo, 2016).

1.2.4. Racial/Ethnic Discrimination and Smoking-Related Gender Differences

Few studies have explored gender differences in smoking as a response to discrimination. The relationship between racial discrimination and smoking by gender among African American smokers was evaluated, while controlling for acculturation and SES (Landrine and Corral, 2016). African American adults, aged 18 to 95 living in California, completed a battery of self-report measures. All participants had to have smoked at least 100 cigarettes in their lifetime and identify as smokers at the time of the study. Racial discrimination was assessed using a single item asking how much racism or discrimination had been experienced in the past year. The authors found racial discrimination to be a strong predictor of smoking in bivariate logistic

regression analyses, but not in a multivariate model that included acculturation and SES. They concluded that low acculturation was associated with smoking among women but not men. The investigators also found that the association of racial/ethnic discrimination to cigarette smoking did not differ between the participants of the two gender groups.

Among Latino smokers, the impact of everyday discrimination on the risk of being a current smoker was greatest for Latino men, as their level of racial/ethnic identity increased (Molina, Jackson, & Rivera-Olmedo, 2016). No differences were found for Latina smokers across different racial/ethnic identity levels (Molina, Jackson, & Rivera-Olmedo, 2016). In continuation, the smoking status of 150 adolescents ($\mu = 14.51$ years) of Latino descent from Miami and Los Angeles were examined (Lorenzo-Blanco, Unger, Ritt-Olson, Soto, & Baexconde-Garbanati, 2011). The adolescents' smoking status (i.e., "Have you smoked cigarettes in the past 30 days?") was indirectly assessed by their parents' report of perceived discrimination through structural equation modeling. Among Latino adolescents, parents' perceived discrimination was not associated with past-30-day-smoking in boys, but these two variables were significantly related among girls (Lorenzo-Blanco, Unger, Ritt-Olson, Soto, & Baexconde-Garbanati, 2011). Unfortunately, associating adolescent smoking outcomes with parental perception of discrimination does not offer any conclusions about the influence of racial/ethnic discrimination in cigarette use among adolescent boys and girls.

1.2.5. Assessment of Racial/Ethnic Discrimination

Research examining the relationship between racial/ethnic discrimination and cigarette use has been conducted with cross-sectional methods. The majority of studies have used yes/no questions that assess the presence versus absence of discriminatory events experienced by participants (Landrine, Klonoff, Corral, Fernandez, & Roesch, 2006). These questions have

asked participants if they have ever experienced a situation of racial discrimination during their lives (Landrine, Klonoff, Corral, Fernandez, & Roesch, 2006). Other studies have used one to two dichotomous items to assess discrimination in a variety of different settings (Landrine, Klonoff, Corral, Fernandez, & Roesch, 2006). Some authors have noted that although the use of dichotomous items has made valuable contributions to the literature, they have failed to assess the frequency or appraisal of discriminatory events (Landrine, Klonoff, Corral, Fernandez, & Roesch, 2006). More specifically, assessments measuring, and studies examining discrimination, have failed to measure the effects of how discrimination affects health behaviors, like cigarette use (Landrine, Klonoff, Corral, Fernandez, & Roesch, 2006).

Self-report and observational studies have yielded inconsistent findings regarding the relationship between affect and smoking motivation (Heckman et al., 2013). Racial/ethnic discrimination has been found to create various levels of stress and negative affect (Ahmed, Mohammed, & Williams, 2007; Corral & Landrine, 2012). In general, researchers have established that this adverse affect is associated with cigarette use, but little is known about its role in the initiation, maintenance, and cessation of cigarette use (Corral & Landrine, 2012; Echeverria et al., 2015; Horton & Loukas, 2013; Kendzor D. E. et al., 2014; Kristman-Valente & Flaherty, 2016; Landrine et al., 2006; Molina, Jackson, & Rivera-Olmedo, 2016). To better understand the relationship between discrimination and cigarette use it may be necessary to establish a more direct link between racial/ethnic discrimination and smoking or its proximal determinants (e.g., craving) by employing an experimental method. Linking racial/ethnic discrimination to smoking or its proximal determinants provides necessary treatment implications for African American and Latino smokers. To the author's knowledge researchers have not yet applied a type of methodology that re-creates or introduces racial/ethnic

discrimination in a laboratory setting. Attempting to re-create the experience of discrimination in the lab expands the knowledge of its role in cigarette use.

1.3. Major Research Findings and Gaps

Cigarette use among Americans remains a significant health burden (Centers for Disease Control and Prevention, 2015). Despite equal to or lower prevalence rates of cigarette use, Black/African American and Latino/Hispanic smokers have lower cessation rates, higher smoking-related diseases later in life, and higher smoking-attributable mortality rates (Centers for Disease Control and Prevention, 2015). Evaluation of social determinants of health and determinants of cigarette use among these populations provide better understanding of the differing cigarette use trajectories. Along with other cultural stressors, racial/ethnic discrimination has been found to be an important predictor to explore, given its potential role as a stressor related to biological and psychological distress (Ahmed, Mohammed, & Williams, 2007; Brodish, et al., 2011; Brondolo, et al., 2015; Corral & Landrine, 2012). Cigarette smoking and failed cessation are associated with experiences of racial/ethnic discrimination for both African American and Latino smokers (Borrell et al., 2010; Brondolo, et al., 2015; Corral & Landrine, 2012; Kendzor et al., 2014; Landrine & Klonoff, 2000; Landrine, Klonoff, Fernandez, & Roesch, 2006).

Furthermore, the role of racial/ethnic discrimination in the mechanism of cigarette use is understudied (Brodish, et al., 2011; Brondolo, et al., 2015). Additionally, authors have noted the survey-based, observational methodology that researchers have used in the past has not established a direct link between racial/ethnic discrimination and increased cigarette use (Brodish, et al., 2011). Researchers have differentiated between different types of racial/ethnic discrimination assessment and conceptualization, with limited consensus on the best approach in explaining cigarette usage among African American and Latino smokers (Bennett et al., 2005;

Horton & Loukas, 2013; Kendzor, et al., 2014; Landrine et al., 2006). In addition, Racial/ethnic discrimination is associated with cigarette use among African American men (Landrine & Corral, 2016) and Latino men with high levels of racial/ethnic identity (Molina, Jackson, & Rivera-Olmedo, 2016). However, very few studies have explored gender-specific, cultural correlates of cigarette use among men and women. Studies examining smoking motivation have utilized cue-reactivity paradigms to test the effects of negative affect on cigarette craving (Heckman et al., 2013). However, to the author's knowledge, racial/ethnic discrimination cues have not been investigated in this necessary literature gap.

Chapter 2. The Present Study

2.1. Brief Overview

The present study sought to assess the relationship between racial/ethnic discrimination and cigarette use among African American and Latino smokers. To the author's knowledge, this was the first study to use both experimental and qualitative research methods to assess the role of racial/ethnic discrimination in cigarette use. Also, the study sought to assess the impact of racial/ethnic discrimination on cigarette use differences among gender.

2.2. Cigarette Craving

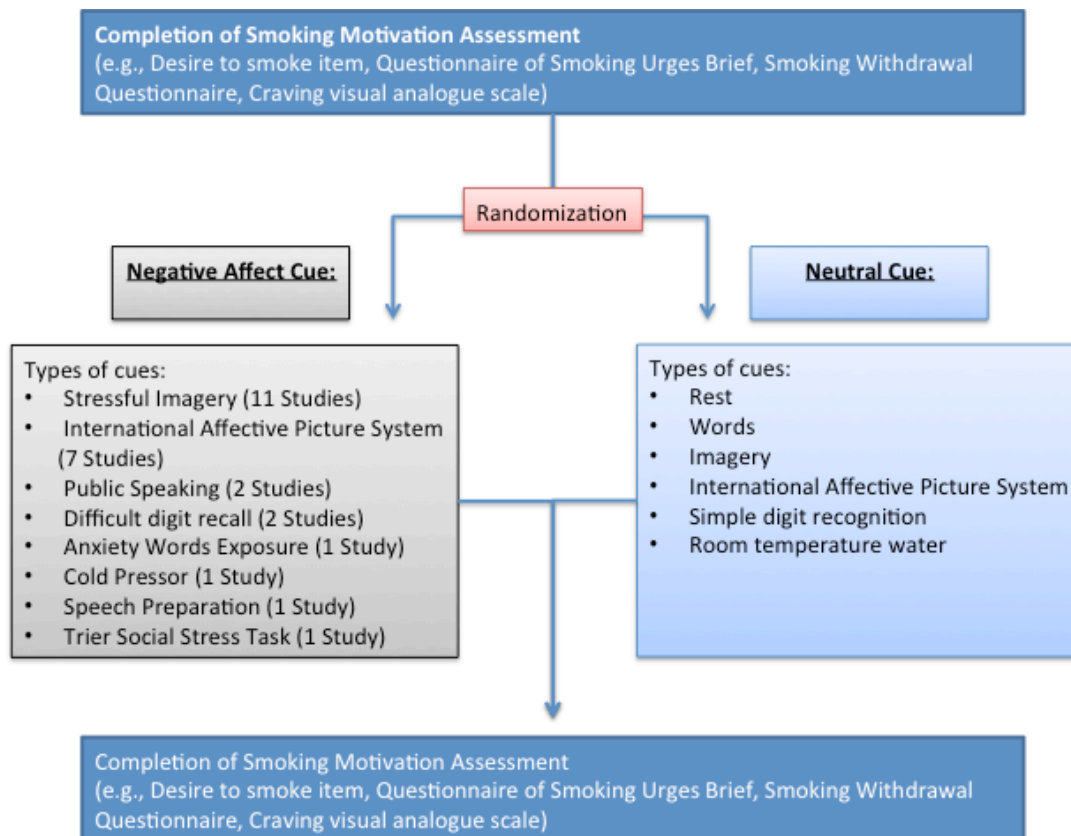
2.2.1. Measurement of Cigarette Craving

A variety of studies have been conducted to measure cigarette-related behaviors to understand factors that are related to cigarette use. The most robust response to smoking-related cues occurs in subjective reports of cigarette craving, with most studies yielding statistically significant amounts of affectivity ($d = 1.18$) (Heckman et al., 2013). Cigarette craving is central to a theoretical and clinical understanding of smoking behavior and is influenced by smoking cues, affect, and abstinence (Clausius et al., 2012). Cigarette craving, or the urge or desire to smoke, in response to stressors, has been found to directly impact the use of cigarettes (Carter et al., 2010; Erblich, Bovebjerg, & Diaz, 2012; Shiffman & Waters, 2004). The experience of craving is a significant factor responsible for maintaining smoking behavior and initiating relapse during quit attempts (Carter et al., 2010). The role of cigarette craving is the target for many smoking cessation programs and interventions (West & Ussher, 2010). Lastly, cessation of cigarette use has been found to be affected by a person's level of addiction and craving (Satcher, 1998). Smoking cessation results from the interplay of various factors such as individual

knowledge of the effects of smoking cigarettes and environmental access to smoking cessation resources (Satcher, 1998).

Stress can trigger strong cigarette craving and has been reliably modeled in the laboratory (Erblich et al., 2012). A meta-analysis concluding 26 negative affect cue-reactivity studies using cigarette-craving assessments (Figure 1.2.) (Heckman, et al., 2013). The role of negative affect and stress in cigarette craving has been replicated in controlled laboratory studies (Heckman et al., 2013). Cue-reactivity paradigms are the most widely utilized method for examining the influence of situational stimuli on smoking motivation (Heckman et al., 2013). In a controlled design, participants are exposed to a cue of interest or a neutral comparison condition (Heckman et al., 2013). Cue-provoked cigarette craving has been found to be clinically meaningful and is important in understanding smoking cessation outcomes (Heckman et al., 2013). Cigarette craving has been measured by the Questionnaire of Smoking Urges-Brief, Smoking Withdrawal Questionnaire, and single item measurements of “desire to smoke” (Heckman, et al., 2013). Cigarette craving as an outcome is particularly appropriate for the present study, due to ethnic minorities and women experiencing greater craving during withdrawal (Carter, et al., 2010; Wray, et al., 2015).

Figure 2.1. Cue-Reactivity Paradigm Procedure.



Procedural flow of 26 cigarette craving outcome studies utilizing the cue-reactivity paradigm (Heckman et al., 2013)

2.2.2. Racial/Ethnic Discrimination Cue-Reactivity

The present study introduced a novel examination of racial/ethnic discrimination through the use of the cue-reactivity paradigm. Introduction of racial/ethnic discrimination cues poses difficult methodological and ethical challenges. Creating a racial/ethnic discrimination experience cannot be conducted in the laboratory setting. Therefore, use of past racial/ethnic memories will be a central focus of the study. As evidenced in Figure 2 (presented above), public speaking, speech preparation, and use of imagery have been employed as methods of eliciting negative affect. Most of these methods introduce anxiety and general stress (Heckman et al., 2013), which would not be effective in examining the specifics of racial/ethnic discrimination.

Racial/ethnic discrimination, in this study, is being classified as a negative life experience similar to those in studies exploring the traumatic experiences of Posttraumatic Stress Disorder. The use of writing and reflection has been found to be effective in eliciting negative affect linked to an adverse or traumatic event (Pennebaker, *Writing to heal: A guided journal for recovering from trauma & emotional upheaval*, 2004; Range & Jenkins, 2010). The study posited that recollection and subsequent reflection on impactful racial/ethnic discrimination experiences elicited negative affect, which will in turn influence cigarette craving. A necessary control group condition was necessary in this study. Therefore, the recollection of racial/ethnic discrimination experiences was compared to a general negative affect experience of recalling an academic or job-related failure.

2.2. Study Aims

The first objective of the present study was to examine the influence of personal recollections of racial/ethnic discrimination experiences on the degree of cigarette craving among African-American and Latino smokers. The influence of racial/ethnic discrimination experiences will be examined in comparison to participants' own report of neutral experiences. The first objective seeks to establish a direct relationship between racial/ethnic discrimination and cigarette craving; and identify if negative affect brought upon by racial/ethnic discrimination experiences is greater than those of general negative experiences. The second aim of the proposed study is to examine and analyze transcripts of personal recollections of racial/ethnic discrimination experiences for possible variability in the degree of impact of the stressful nature of self-reported discriminatory experiences and the emotional responses to the recall of these experiences. Qualitative data will be collected to determine the reported intensity of negative

affect elicited by various themes or types of discrimination experienced and their relation to changes in cigarette craving.

2.3. Study Hypotheses and Research Questions

2.3.1. Quantitative Hypotheses

Hypothesis 1: The first group of hypotheses were focused on outcomes of cigarette craving between the two writing tasks.

1. Cigarette craving scores will significantly increase after completing the racial/ethnic discrimination task from baseline cigarette craving scores.
2. Cigarette craving scores will significantly increase after completing the academic/job failures task from baseline cigarette craving scores.
3. Recalling racial/ethnic discrimination experiences through writing and reflection will lead to a greater increase of cigarette craving for both African American and Latino smokers than recalling job-related or academic failures.

Hypothesis 2: The second group of hypotheses were focused on outcomes of negative affect between the two writing tasks.

1. Negative affect scores will significantly increase after completing the racial/ethnic discrimination task from baseline negative affect scores.
2. Negative affect scores will significantly increase after completing the academic/job failures task from baseline negative affect scores.
3. Recalling racial/ethnic discrimination experiences through writing and reflection will lead to a greater increase of negative affect for both African American and Latino smokers than recalling job-related and academic failures.

Hypothesis 3: The third group of hypotheses were focused on gender differences in outcomes of cigarette craving between the two writing tasks.

1. A greater increase in cigarette craving scores will occur after completing the racial/ethnic discrimination task from baseline cigarette craving scores for women compared to men.
2. A greater increase in cigarette craving scores will occur after completing the academic/job failures task from baseline cigarette craving scores for women compared to men.
3. Recalling racial/ethnic discrimination experiences through writing and reflection will lead to a greater increase of cigarette craving for women than for men, for both African American and Latino smokers than recalling job-related and academic failures.

Hypothesis 4: The fourth group of hypotheses were focused on gender differences in outcomes of negative affect between the two writing tasks.

1. A greater increase in negative affect scores will occur after completing the racial/ethnic discrimination task from baseline negative affect scores for women compared to men.
2. A greater increase in negative affect scores will occur after completing the academic/job failures task from baseline negative affect scores for women compared to men.
3. Recalling racial/ethnic discrimination experiences through writing and reflection will lead to a greater increase of negative affect for women than for men for both

African American and Latino smokers than recalling job-related and academic failures.

2.3.2. Language Processing Questions and Qualitative Data

The content in participants' written responses were analyzed to better understand the role of racial/ethnic discrimination in the use of cigarettes, in comparison to the academic/job-related failure experiences. Two methods were conducted to analyze the written responses. First, the Linguistic Inquisition Word Count (LIWC) software (Pennebaker, Boyd, Jordan, & Blackburn, 2015) was used to assess the data. The LIWC software was designed to analyze psychological constructs in written data, allowing for comparisons between the two tasks. Second, steps of a thematic analysis were utilized to further assess themes in the written content, in comparison to the LIWC results. A full thematic analysis was not completed, due to the validity of the LIWC software. However, investigation of other themes in the content was important to the conceptualization of the project.

In addition, because of the unique nature of the recollection of and reflection on personal racial/ethnic experiences of discrimination in this study, it is deemed important to examine participant perspectives on the effectiveness of the experimental approach used. Degree of effectiveness of the writing task were determined by content of responses given to several questions used in individual interviews with participants following the collection of quantitative data. These questions to be answered are as follows:

Question 1:

Why did you choose to write about that particular experience?

Question 2:

On one of the instruments, we asked you about some negative emotions you might be experiencing. Can you please explain more about any of these negative emotions?

Question 3:

Can you please describe any bodily reactions (i.e., increased heart rate, sweating, increased muscle tension) that arose for you during the task?

Question 4:

When the experience you wrote about occurred, what did you do at the time to cope with the encounter?

Question 5:

Do you feel that any of your experiences of racial/ethnic discrimination are connected to your gender? If so, please describe in detail.

2.4. Potential Implications of the Study

The mixed methods design and the novel use of recollection of the most extreme racial/ethnic discrimination experiences endured by the participants as they relate to cigarette craving could fill major gaps in the existing literature. The study will expand knowledge of the relationship between racial/ethnic discrimination and cigarette craving that has been based on cross-sectional and observational methods among African American and Latino smokers. The qualitative nature of this study will give insight to African American and Latino smokers' perspective of their individual experience with cigarettes. Establishing a significant relationship between racial/ethnic discrimination and cigarette craving could indicate the importance of including racial/ethnic discrimination in psychoeducational materials for cigarette use prevention. The study could also highlight the importance of education on how to deal with

racial/ethnic discrimination among African American and Latino individuals to counteract cigarette craving.

Chapter 3. Research Methods

3.1. Participants

3.1.1. Recruitment

Participants were recruited through the use of flyers, online recruitment websites, social media platforms, and through organizations and churches in the greater Austin area. Participants were also recruited through the Psychology 301 SONA system. The SONA system is used for students enrolled in the Psychology 301 course. One of the requirements of the course is to participate in research in the Psychology Department. Interested participants contacted the researcher or members of the research team by email or text, or filled out an online inquiry expressing interest. Online inquiries were completed through the Qualtrics Survey Software. Researchers then contacted participants via their preferred communication method to assess if they qualified for the study. Sessions were scheduled with participants that qualified. A total of 78 participants completed an online inquiry expressing their interest in the study, in addition to inquiries by email and text. A total of 34 participants began and completed the study. Participants received \$20 when they completed the study. Research funding was provided as part of the American Psychological Association Dissertation Research Award.

3.1.2. Inclusion/Exclusion Criteria

Participants were included in the study if they:

- Self-identified as African American/Black or Latino/Hispanic.
- Identified as a cigarette user, defined as: having smoked at least 100 cigarettes in their life and currently smoking cigarettes every day or some days.
- Were over 18 years of age.

3.1.3. Participant Information

The sample comprised of 34 participants. Specific participants characteristics are found in Table 3.1.

<u>Variable</u>	<u>Total, %</u>
Total	$N = 34$
Age (M, SD)	28.24, 10.51
Male Sex (N, %)	24 (70.6%)
Race/Ethnicity (N, %)	
Black/African American	7 (20.6%)
Latino/Hispanic	27 (79.4%)
Socioeconomic Status (N, %)	
Lower SES	6 (17.7%)
Middle SES	18 (52.9%)
Upper SES	10 (29.4%)
U.S. Generational Status (N, %)	
1 st Generation (Born in another country)	9 (26.5%)
2 nd Generation (One parent born in another country)	11 (32.4%)
3 rd Generation (One grandparent born in another country)	4 (29.4%)
4 th Generation (One great-grandparent born in another country)	10 (29.4%)
Enrolled in College/University (N, %)	23 (67.6%)

3.2. Measures

3.2.1. Demographics

Demographic data on each participant was gathered with a demographic questionnaire. Information on age, gender, and college status was obtained. The participants' socioeconomic status and United States generation level was also collected.

3.2.2. Writing Task

The writing task prompt was based on the Pennebaker Writing Task (Pennebaker, Writing to heal: A guided journal for recovering from trauma & emotional upheaval, 2004). The

study had 2 writing prompts for each of the tasks. The writing prompt for the racial/ethnic discrimination group is as follows:

“I would like for you to write about your very deepest thoughts and feelings about the most memorable or distressing experience (when you felt so hurt by the experience you have not been able to forget it) of racial/ethnic discrimination in your entire life. In your writing, I’d like you to really let go and explore your very deepest emotions and thoughts. You might tie this experience to your childhood, your relationships with others, including authority figures, parents, lovers, friends, or relatives. You may also link this event to your past, your present or your future, or to who you have been, who you would like to be, or who you are now. Don’t worry about spelling, sentence structure, or grammar. The only rule is that once you begin writing, continue to do so until your time is up.”

The writing prompt for the academic/job-related failure group is as follows:

“I would like for you to write about your very deepest thoughts and feelings about a job or academic failure (when you felt so hurt by the experience you have not been able to forget it) that produced emotions of fear or anxiety, sadness, or anger. Some examples of a situation are that you failed an important exam that you studied extensively for or you experienced considerable anxiety during a presentation at work that affected your communication. In your writing, I’d like you to really let go and explore your very deepest emotions and thoughts. You may link this event to your past, your present or your future, or to who you have been, who you would like to be, or who you are now. Don’t worry about spelling, sentence structure, or grammar. The only rule is that once you begin writing, continue to do so until your time is up.”

3.2.3. Outcome Measures

3.2.3.1. Cigarette craving.

The Questionnaire of Smoking Urges-Brief (QSU; Tiffany & Drobes, 1991) assessed the potential multidimensional nature of craving. The questionnaire consists of 10-items taken from an original 32-item scale. The items can be completed in less than 2 minutes, and participants are instructed to respond to statements using a 7-point scale ranging from strongly agree to strongly disagree. The questionnaire has been used in numerous studies with smokers to test their desire and intention to smoke (factor 1) and anticipation of relief from negative affect (factor 2).

Reliability for both factors has been established for the questionnaire ($\alpha = 0.91$ & $\alpha = 0.80$,

respectively) for clinical and laboratory settings. Tobacco craving was measured both before and after each writing task.

3.2.3.2. Negative affect.

The 20-item Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988) measured positive and negative affect. The scale allows participants to rate the extent to which they feel emotion in general on a 5-point scale (1 = very slightly or not at all and 5 = extremely). The scale is divided into two 10-item sections measuring positive affect and negative affect. Participants were asked about how they felt at the present moment. The scale has established reliability (negative affect: $\alpha = .85$; positive affect: $\alpha = .89$). The PANAS was measured before and after writing to measure the degree of negative affect elicited by the personal recollection of discrimination experiences and academic/job-related failure experiences.

3.2.4. Independent Variable Measurements

3.2.4.1. Ethnic identity.

The Multigroup Ethnic Identity Measure (MEIM; Phinney, 1992) is a 12-item measure that assesses the concept of ethnic identity. The measure was created to distinguish between particular ethnic groups. The questionnaire uses a 4-point Likert scale, ranging from 1 (strongly disagree) to 4 (strongly agree). The measure asks participants about the ethnic group they identify with and to the degree with which they identify with the traditions and cultures of that ethnic group. The measure has established reliability ($\alpha = .90$). The scale was administered to participants as an initial assessment.

3.2.4.2. Nicotine dependence.

The Fagerström Test for Nicotine Dependence (FTND; Heatherton, Kozlowski, Frecker, & Fagerstrom, 1991) is an instrument used for assessing the intensity of physical addiction to

nicotine. The test was designed to measure nicotine dependence related to cigarette smoking. The test consists of 6 items that compile a total score ranging between 0 and 10. The higher the total score, the greater the intensity of the individual's physical nicotine dependence. The test, derived from the original Fagerström Tolerance Questionnaire, has established reliability ($\alpha = .61$). The instrument was administered to participants as an initial assessment.

3.2.5 Interview

After the completing the experiments, participants were interviewed about the writing task and any resulting negative emotions. Participants answered the following questions:

Question 1:

Why did you choose to write about that one particular experience?

Question 2:

On one of the instruments, we asked you about some negative emotions you might be experiencing. Can you please explain more about any of these negative emotions?

Question 3:

Can you please describe any bodily reactions (i.e., increased heart rate, sweating, increased muscle tension) that arose for you during the task?

Question 4:

When the experience you wrote about occurred, what did you do at the time to cope with the encounter?

Question 5:

Do you feel that any of your experiences of racial/ethnic discrimination are connected to your gender? If so, please describe in detail.

3.2.6. Measurement of Distress

Participants were asked to rate their level of distress experienced of the event they wrote about in each writing task. A Likert scale from “0” (no distress) to “5” (high distress) was used to test the level of distress. Measurement of distress was necessary to gauge the intensity of the situations participants are writing about.

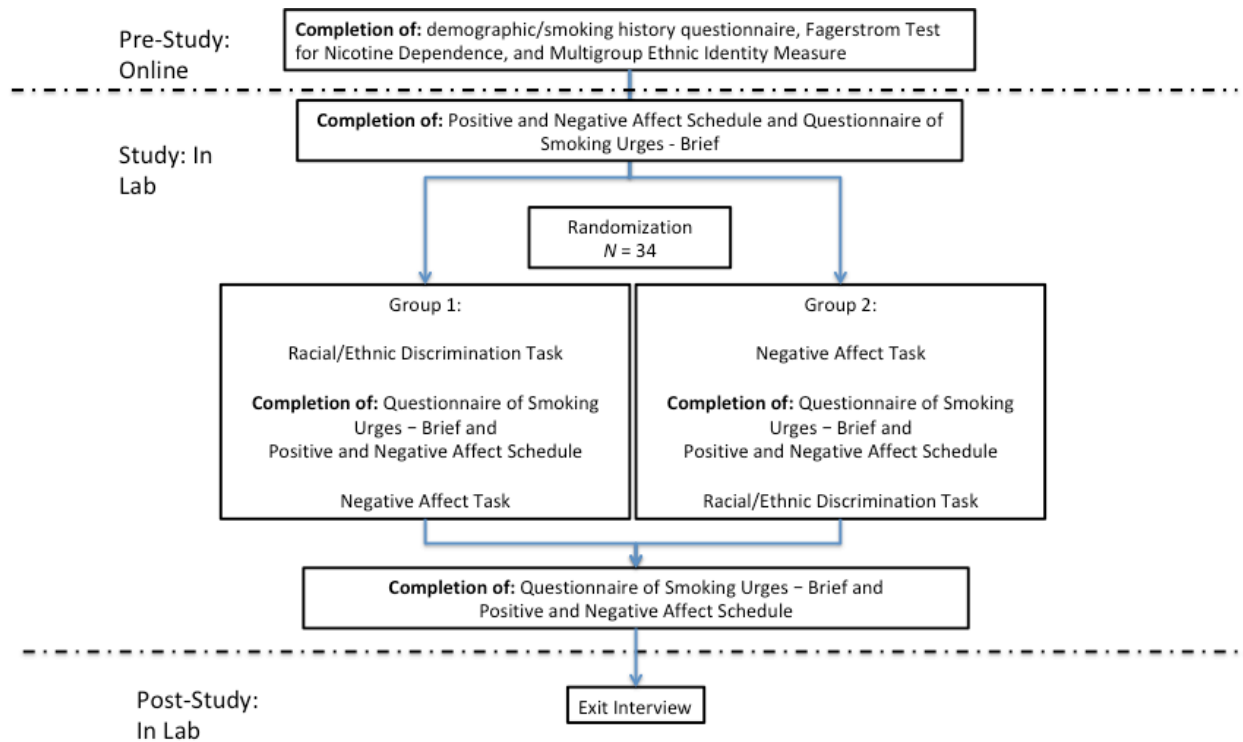
3.3. Procedure

3.3.1. Procedure for Obtaining Informed Consent

Participants were asked to give verbal consent at the beginning of the study. Wavier of written consent was utilized in this study. The researcher and research assistants explained the study components and ensured that the participant understood the study protocol. Participants were informed that research participation was involuntary and that they could end their participation at any time. Participants were also informed that they would not receive compensation if they did not complete the study in its entirety. Once participants agreed to the conditions of the study, they verbally agreed to the terms of the study. All participants were provided with a consent form for their records.

The study was conducted in three phases (Figure 3.1.).

Figure 3.1. Procedural Flow



All data was collected at the University of Texas at Austin in the Multicultural Processes and Mental Health Lab. They were asked to not smoke any type of tobacco product 30 minutes prior to beginning the study, which was confirmed at the beginning of the study. All participants completed a demographic questionnaire, the Fagerström Test for Nicotine Dependence, and the Multigroup Ethnic Identity Measure to begin the study. Participants were randomized into one of two groups to counterbalance the experimental conditions: Group 1: Completing a racial/ethnic discrimination writing task then an academic/job-related failure writing task; Group 2: Completing an academic/job-related failure writing task then a racial/ethnic discrimination writing task.

Initially, participants completed the *Positive and Negative Affect Schedule* and the *Questionnaire of Smoking Urges Brief*. Research assistants then asked participants to write about the most memorable experience of racial/ethnic discrimination they have ever had and about a

stressful job or academic event. Participants received instructions on the task and a writing prompt. After each writing task, participants completed the *Questionnaire of Smoking Urges Brief* and the *Positive and Negative Affect Schedule*. Participants were asked to rate the level of distress they experienced after their reflection time during each writing task. After the writing tasks, participants received the option of watching a video to process any emotional distress they might have experienced. They also had the choice of watching a smoking cessation intervention video, which was a compilation of videos provided by the Centers for Disease Control and Prevention. Lastly, participants completed a short interview to gather more information about their recalled racial/ethnic discrimination experience, negative emotions that occurred, and their views on the writing task. All participants were given resources to increase knowledge about smoking cessation resources, links to the videos they watched after the study, and information on mental health services available to them.

3.3.2. Racial/Ethnic Discrimination Writing Task

The research assistant introduced the concept of racial/ethnic discrimination by stating: *“Today I am going to ask you to think about a time when you experienced racial or ethnic discrimination. By discrimination, I mean, any situation in which you feel you received unfair treatment due to your race or ethnicity. I am going to ask you to think and write about the most memorable experience of **racial or ethnic discrimination** you have ever had. This situation should be something you still remember and that possibly still bothers you today. Take a moment to read this prompt.”*

Participants were given a sheet of paper with a writing prompt and blank lines. Once participants read the prompt, the research assistant asked:

“Do you have any questions about what you are being asked to do? I want you to take some time to think about the most memorable experience of racial or ethnic discrimination you have ever had. This experience might be one that still bothers you or that you still remember today. Once you have thought about one experience, you can begin writing. After some time, I will ask you to then re-read and reflect on your writing. Remember that you do not have to worry about spelling, grammar, or sentence structure. The only thing that you write for the entire time you are given.”

Participants were given 10 minutes to write. Participants were not aware of the time allotted for writing. After 10 minutes, the research assistant asked the participant to re-read their writing and reflect on the experience:

“Now, I would like you to re-read your writing and reflect on the experience for some time.”

Participants were given 5 minutes to re-read and reflect on their writing. Once again, the participants were not aware of how much time was allotted for the reflection period. After 5 minutes, the participant was asked to complete the *Questionnaire of Smoking Urges Brief* and then the *Positive and Negative Affect Schedule*.

3.3.3. Academic/Job-Related Failure Writing Task

The research assistant introduced the academic/job-related failure task by stating:

“Now, I am going to ask you to think about another memorable situation. I am going to ask you to think and write about a situation of a job-related or academic failure (i.e., you failed an important exam that you studied extensively for or you experienced considerable anxiety during a presentation at work that affected your behavior). This situation should be something you still remember and that possibly still bothers you today. Take a moment to read this prompt.”

Participants were given a sheet of paper with a writing prompt and blank lines. Once participants have read the prompt, the research assistant asked:

“Do you have any questions about what you are being asked to do? I want you to take some time to think about the experience. Once you have thought about one experience, you can begin writing. After some time, I will ask you to then re-read and reflect on your writing. Remember that you do not have to worry about spelling, grammar, or sentence structure. The only this that you write for the entire time you are given.”

Participants were given 10 minutes to write. Participants were not aware of the time allotted for writing. After 10 minutes, the research assistant asked the participant to re-read their writing and reflect on the experience:

“Now, I would like you to re-read your writing and reflect on the experience for some time.”

Participants were given 5 minutes to re-read and reflect on their writing. Once again, the participants were not aware of how much time is allotted for the reflection period. After 5 minutes, the participant was asked to complete the *Questionnaire of Smoking Urges Brief* and then the *Positive and Negative Affect Schedule*.

3.4. Analytic Plan

Data collected was analyzed using IBM SPSS Statistical software (Kirkpartick, 2013). Preliminary analyses were evaluated through descriptive statistics of all the outcome variables for the entire sample and within groups. The four study hypotheses were analyzed with a series of repeated measures Analysis of Variances (ANOVAs), because of repeated, independent measurements completed over time. Assumptions of normality and sphericity were also tested statistically. Viewing histograms of the data to depict any skewness, as well as conducting the Shapiro-Wilks test conducted testing normality. Maulchy’s test for sphericity assumption was

conducted to test if all difference scores among the variables were equal across the participants. To address language processing and qualitative aims, a senior research assistant transcribed written responses, along with their exit interview responses. Each participant's data from the writing tasks were entered into the LIWC software, with two entries being completed for each of the writing tasks. The investigator conducted a preliminary thematic analysis of the data to develop themes evident in the written content. A thematic analysis approach was used to analyze the data in a stepped process (Braun & Clarke, 2006):

1. The written content was thoroughly read to identify and code meaningful segments.
2. The segments were categorized into preliminary themes.
3. Themes were identified and labeled.
4. Relationships between themes were considered to identify a conceptual framework for the population.

Chapter 4. Results

4.1. Statistical Power and Sample Size Calculations

A priori determination of sample size was calculated using G*Power3.1 power analysis software (Faul, Erdfelder, Lang, & Buchner, 2013). A total of 28 participants were needed in order to establish a power of 0.812, a moderate effect size ($f = 0.25$), and an alpha of 0.05 to test a repeated measures within-between group analysis with 3 measurements. The final study sample of completers included 34 participants.

4.2. Baseline Outcomes

Participants were given baseline assessments of nicotine dependence, cigarette craving, and negative affect. The Fagerström Test for Nicotine Dependence measured nicotine dependence. The Questionnaire of Smoking Urges-Brief measured cigarette craving. The negative affect subscale of the Positive and Negative Affect Schedule measured negative affect. The overall sample had an average score of 2.65 on the Fagerström Test for Nicotine Dependence, indicating low to moderate dependence. The maximum score on this test was a 7 out of 10, indicating moderate dependence. The overall sample reported an average of 35.15 on the Questionnaire of Smoking Urges-Brief, with the highest score being 57 out of a total possible score of 70. Lastly, the overall sample reported an average score of 19.71 out of a total possible score of 50 on the Negative Affect subscale on the Positive and Negative Affect Schedule. The highest reported negative affect score was 36. Means and standard deviations from these measures are found in Table 4.1.

Table 4.1.

Means and Standard Deviations of Outcome Measures at Baseline for all Participants

<u>Measure</u>	<u>Score (M, SD)</u>
Nicotine Dependence Fagerström Test for Nicotine Dependence	2.65, 2.00
Cigarette Craving Questionnaire of Smoking Urges-Brief	35.15, 11.63
Negative Affect Positive and Negative Affect Schedule-Negative Affect Subscale	19.71, 7.47

Participants' cigarette craving and negative affect were measured at two subsequent time points post writing tasks. Participant means and standard deviations for the overall sample and for men and women are found in Table 4.2 and 4.3.

Table 4.2.

Means and Standard Deviations of the Questionnaire of Smoking Urges-Brief

	<u>Total</u>	<u>Men</u>	<u>Women</u>
Baseline	35.15 (11.63)	33.83 (12.46)	38.30 (9.12)
Post Racial/Ethnic Discrimination Task	38.91 (11.71)	36.71 (11.57)	44.20 (10.81)
Post Academic/Job-Related Failure Task	39.21 (11.51)	38.25 (12.49)	41.50 (8.87)

Table 4.3.

Means and Standard Deviations of the Negative Affect Subscale of the Positive and Negative Affect Schedule

<u>Score</u>	<u>Total</u>	<u>Men</u>	<u>Women</u>
Baseline	19.71 (7.47)	19.21 (7.66)	20.90 (7.25)
Post Racial/Ethnic Discrimination Task	20.56 (6.93)	19.54 (6.73)	23.00 (7.15)
Post Academic/Job-Related Failure Task	20.85 (7.95)	19.58 (7.44)	23.90 (8.69)

4.3. Outcome Measure Group Differences

Within group differences were assessed among the sample across the outcome measures at baseline and post-writing task (QSU-B; Questionnaire of Smoking Urges-Brief, NA-PANAS; Negative Affect Subscale – Positive and Negative Affect Schedule). Chi-squared tests were used to indicate statistically significant differences. No significant within group differences were found within groups on the QSU-B (Table 4.4.), NA-PANAS (Table 4.5.). In addition, differences between the retrospective distress ratings of the racial/ethnic discrimination tasks and academic/job-related failure task experiences at the time of the event were not significant (Table 4.6.).

Table. 4.4.			
<i>Chi-Squared Comparison of Questionnaire of Smoking Urges-Brief within Demographic Groups</i>			
	<u>Baseline Craving Score</u>	<u>Post-Racial/Ethnic Discrimination Writing Task Score</u>	<u>Post-Academic/Job-Related Failure Writing Task Score</u>
	$\chi^2(df), p$	$\chi^2(df), p$	$\chi^2(df), p$
Gender (Men, Women)	18.747(20), 0.538	24.367(23), 0.384	28.381(22), 0.163
Race/Ethnicity (Black/African American, Latino/Hispanic)	32.347(40), 0.800	46.750(46), 0.441	47.458(44), 0.334
Socioeconomic Status (Lower SES, Middle SES, Upper SES)	76.185(80), 0.600	85.630(92), 0.667	78.641(88), 0.752
U.S. Generational Status (1 st , 2 nd , 3 rd , 4 th)	55.376(60), 0.645	67.293(69), 0.536	67.637(66), 0.421
Enrolled in College/University (Yes, No)	23.339(20), 0.272	24.862(23), 0.357	25.014(22), 0.296

Table 4.5.

Chi-squared Comparisons of Negative Affect Subscale of the Positive and Negative Affect Schedule within Demographic Groups

	<u>Baseline Negative Affect Score</u>	<u>Post-Racial/Ethnic Discrimination Writing Task Score</u>	<u>Post- Academic/Job- Related Failure Writing Task Score</u>
	<u>$\chi^2(df), p$</u>	<u>$\chi^2(df), p$</u>	<u>$\chi^2(df), p$</u>
Gender (Men, Women)	16.499(16), 0.419	23.564(19), 0.213	25.972(21), 0.208
Race/Ethnicity (Black/African American, Latino/Hispanic)	29.986(32), 0.569	34.236(38), 0.644	54.778(42), 0.089
Socioeconomic Status (Lower SES, Middle SES, Upper SES)	63.404(64), 0.498	80.278(76), 0.347	79.963(84), 0.604
U.S. Generational Status (1 st , 2 nd , 3 rd , 4 th)	44.914(48), 0.600	65.434(57), 0.207	55.695(63), 0.732
Enrolled in College/University (Yes, No)	22.425(16), 0.130	22.958(21), 0.346	24.862(19), 0.165

Table 4.6.

Chi-squared Comparisons of Subjective Distress Ratings of Past Experiences within Demographic Groups

	<u>Distress Rating of Racial/Ethnic Discrimination Experience</u>	<u>Distress Rating of Academic/Job-Related Failure Experience</u>
	$X^2(df), p$	$X^2(df), p$
Gender (Men, Women)	6.304(6), 0.390	3.681(5), 0.596
Race/Ethnicity (Black/African American, Latino/Hispanic)	12.042(12), 0.442	5.565(10), 0.850
Socioeconomic Status (Lower SES, Middle SES, Upper SES)	34.630(24), 0.074	29.362(20), 0.081
U.S. Generational Status (1 st , 2 nd , 3 rd , 4 th)	10.644(18), 0.909	14.633(15) 0.478
Enrolled in College/University (Yes, No)	3.158(6), 0.789	6.055(5), 0.301

4.4. Testing of Hypotheses

4.4.1. Assumption of Normality

The assumption of normality was tested to determine if the data was a well-modeled normal distribution as an overall sample and within each gender group. Residuals of the outcome measures at each time point were created and also checked for normality. The Shapiro-Wilks test was used and normality was concluded as indicated by p -values greater than 0.05. P -values greater than 0.05 indicate that data is not different than a normal distribution. Shapiro-Wilks test is best used for data with small sample sizes (Thode, 2002).

4.4.2. Hypothesis 1: Comparison of Cigarette Craving by Writing Task

The first hypothesis assessed whether participants' reported cigarette craving scores were significantly different in response to both the racial/ethnic discrimination writing and

academic/job-related failure writing tasks. A repeated measures ANOVA was used to address whether participants' reported cigarette craving scores post racial/ethnic discrimination task were significantly different from baseline scores. Cigarette craving scores were significantly increased from baseline to post racial/ethnic discrimination task, $F(1, 33) = 4.225, p = .048$. A repeated measures ANOVA was used to address whether participants' reported cigarette craving scores post academic/job failure task were significantly different from baseline scores. Cigarette craving scores significantly increased from baseline to post academic/job failure task, $F(1, 33) = 5.427, p = .026$. A repeated measures ANOVA was used to address whether the difference from baseline to post racial/ethnic discrimination task was significantly different than the difference from baseline to post academic/job failure task. The repeated measures ANOVA tested the interaction between task and time. No significant differences were found in the change in cigarette craving scores from baseline to post task between the two writing tasks, $F(1, 33) = 0.034, p = .854$.

4.4.3. Hypothesis 2: Comparison of Negative Affect by Writing Task

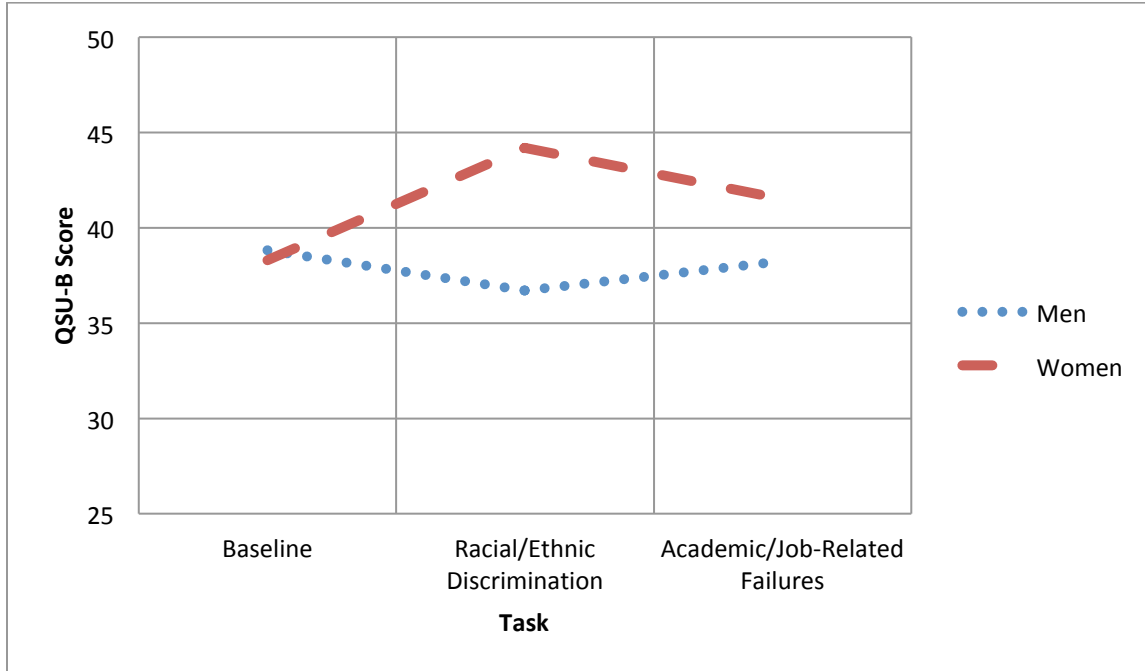
The second hypothesis assessed whether participants' reported negative affect was significantly different in response to both the racial/ethnic discrimination writing and academic/job-related failure writing tasks. A repeated measures ANOVA was used to address whether participants' reported cigarette craving scores post racial/ethnic discrimination task were significantly different from baseline scores. Negative affect scores did not significantly increase from baseline to post racial/ethnic discrimination task, $F(1, 33) = 0.826, p = .370$. A repeated measures ANOVA was used to address whether participants' reported cigarette craving scores post academic/job failure task were significantly different from baseline scores. Negative affect scores did not significantly increase from baseline to post academic/job failure task, $F(1, 33) = 2.183, p = .149$. A repeated measures ANOVA was used to address whether the difference from

baseline to post racial/ethnic discrimination task was significantly different than the difference from baseline to post academic/job failure task. The repeated measures ANOVA tested the interaction between task and time. No significant differences were found in the change in negative affect scores from baseline to post task between the two writing tasks, $F(1, 33) = 0.101$, $p = .753$.

4.4.4. Hypothesis 3: Comparison of Cigarette Craving by Writing Task and Gender

The third hypothesis assessed whether participants' reported cigarette craving was significantly different in response to both the racial/ethnic discrimination writing and academic/job-related failure writing tasks, for men compared to women. Scores between the two gender groups are depicted in Figure 4.1. A repeated measures ANOVA was used to address whether participants' reported cigarette craving scores post racial/ethnic discrimination task were significantly different from baseline scores between gender groups. Cigarette craving scores were not significantly different from baseline to post racial/ethnic discrimination task between women and men, $F(1, 33) = 0.559$, $p = .460$. A repeated measures ANOVA was used to address whether participants' reported cigarette craving scores post academic/job failure task were significantly different from baseline scores. Cigarette craving scores were not significantly different from baseline to post academic/job failure task between women and men, $F(1, 33) = 0.098$, $p = .756$. A repeated measures ANOVA was used to address whether the difference from baseline to post racial/ethnic discrimination task was significantly different than the difference from baseline to post academic/job failure task between gender groups. The repeated measures ANOVA tested the three-way interaction between gender, task, and time. No significant differences were found in the change in cigarette craving scores from baseline to post task between the two writing tasks and between gender groups, $F(1, 33) = 1.505$, $p = .229$.

Figure 4.1. Questionnaire of Smoking Urges-Brief Across Writing Task

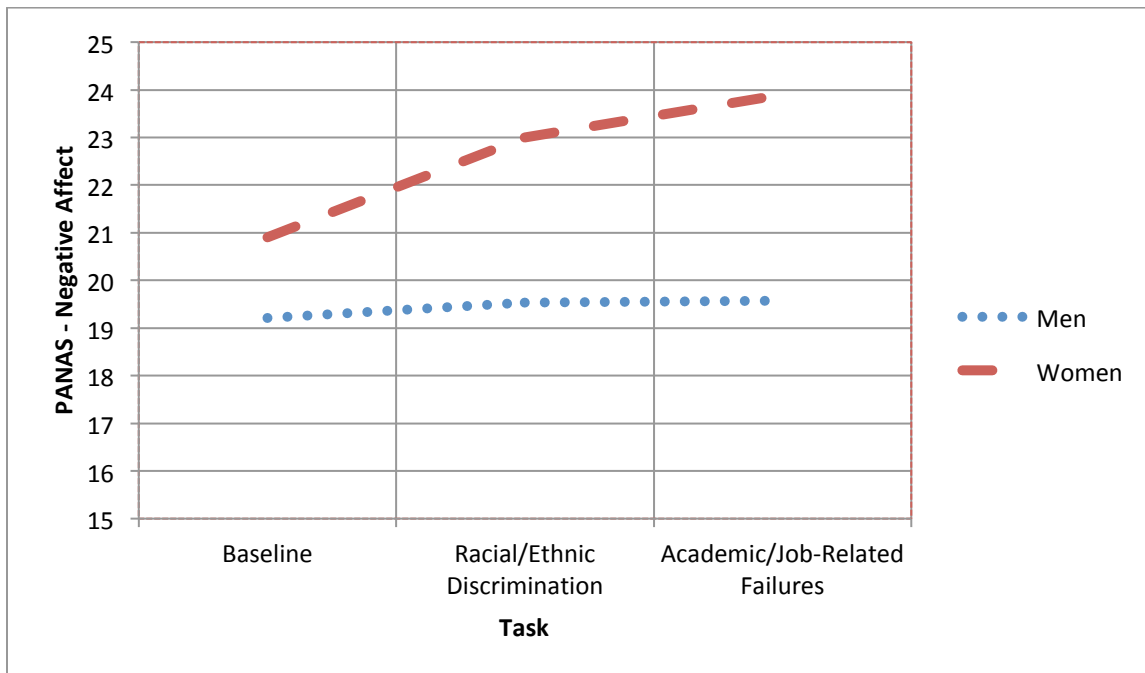


4.4.5. Hypothesis 4: Comparison of Negative Affect by Writing Task and Gender

The fourth hypothesis assessed whether participants' reported negative affect was significantly different over time in response to both the racial/ethnic discrimination writing and academic/job-related failure writing tasks, for men compared to women. The effects between men and women are shown in Figure 4.2. A repeated measures ANOVA was used to address whether participants' reported negative affect scores post racial/ethnic discrimination task were significantly different from baseline scores between gender groups. Negative affect scores were not significantly different from baseline to post racial/ethnic discrimination task between women and men, $F(1, 33) = 0.730, p = .399$. A repeated measures ANOVA was used to address whether participants' reported negative affect scores post academic/job failure task were significantly different from baseline scores between gender groups. Negative affect scores were not significantly different from baseline to post academic/job failure task between women and men, $F(1, 33) = 2.480, p = .125$. A repeated measures ANOVA was used to address whether the

difference from baseline to post racial/ethnic discrimination task was significantly different than the difference from baseline to post academic/job failure task between gender groups. The repeated measures ANOVA tested the three-way interaction between gender, task, and time. No significant differences were found in the change in negative affect scores from baseline to post task between the two writing tasks between women and men, $F(1, 33) = 0.174, p = .679$.

Figure 4.2. Negative Affect Subscale across Writing Task



4.5. Post Hoc Exploratory Questions

4.5.1. Relationship of Distress Ratings of Experiences to Craving Scores

Participants rated, on a Likert scale from 1 to 7, the retrospective level of distress experienced at the time of the discrimination and academic/job-related failure event they write about. Higher reported distress corresponds to a higher number on the Likert scale. Participants reported higher distress levels from their most distressing academic/job-related failure experiences than their most distressing racial/ethnic discrimination experiences (academic/job-related failure experience; $M = 5.00, SD = 1.33$; racial/ethnic discrimination experience; $M =$

4.18, $SD = 1.91$). It was expected that higher reported cigarette craving (QSU-B; Questionnaire of Smoking Urges-Brief) and negative affect (NA-PANAS; Negative Affect subscale - Positive and Negative Affect Scale) would be related to higher reported distress on each representative task. A regression model was used to test if participants' self-reported post-racial/ethnic discrimination writing task cigarette craving and negative affect scores were related to their reported distress.

The QSU-B and NA-PANAS post-racial/ethnic discrimination writing tasks were not significantly related to distress ratings of the racial/ethnic discrimination experiences [QSU-B: $\beta = 0.057$, $p = 0.052$, CI, 95% (0.000 – 0.115); NA-PANAS: $\beta = 0.050$, $p = .307$, CI, 95% (0.002 – 0.148)]. However, the relationship between cigarette craving scores on the QSU-B and the distress rating of past racial/ethnic discrimination experiences, when controlling for NA-PANAS, was approaching statistical significance ($p = 0.052$). Therefore, as cigarette craving scores increased the distress rating increased, while considering negative affect scores. The post-academic/job-related failure writing task QSU-B score was significantly related to distress rating of the academic/job-related failure experience, when controlling for NA-PANAS scores [QSU-B: $\beta = 0.044$, $p = 0.040$, CI, 95% (-0.048 – 0.148)]. However, the post-academic/job-related failure writing task NA-PANAS scores were not significantly related to distress rating of the academic/job-related failure experience, when controlling for QSU-B scores [NA-PANAS: $\beta = -0.029$, $p = 0.329$, CI, 95% (-0.090 – 0.031)].

4.6. Language Processing Analyses

Participants' written responses were analyzed. Three separate analyses were conducted to address the three language processing and qualitative aims.

4.6.1. Question 1: Group Differences in Psychological Constructs from Written Content

In order to better understand the influence of racial/ethnic discrimination experiences on cigarette craving, the responses were analyzed using the Linguistic Inquisition Word Count software (LIWC; Pennebaker, Boyd, Jordan, & Blackburn, 2015). Words in written content are compared to a data dictionary in the software system. The data dictionary includes information on word count, 4 summary language variables (analytic thinking, clout, authenticity, and emotional tone), 3 general descriptor categories (words per sentence, percent of target words captured by the dictionary, and percent of words in the text that are longer than six letters), 21 standard linguistic dimensions, 41 word categories tapping psychological constructs (e.g., affect, cognition, biological processes, drives), 6 personal concern categories (e.g., work, home, leisure activities), and language and punctuation categories. For the purposes of this study, the word categories tapping psychological constructs were of interest. All of the categories assessed are found in Figure 4.3. The software reads the written text and compares each word to the internal dictionary. A percentage is calculated of total words that match each of the dictionary categories. Participants wrote an average of 195.36 words ($SD = 65.641$) in the racial/ethnic discrimination task and an average of 196.00 words ($SD = 58.64$) on the academic/job-related failure task. On the racial/ethnic discrimination task, men ($M = 198.417$, $SD = 69.823$) wrote more words than women ($M = 187.222$, $SD = 55.823$). On the academic/job-related failure task, women ($M = 212.111$, $SD = 60.352$) wrote more words than men ($M = 189.958$, $SD = 58.113$).

Figure 4.3. LIWC Psychological Processes Categories

Affective Processes	Social Processes	Cognitive processes	Perceptual Processes	Biological Processes
<ul style="list-style-type: none"> • Positive Emotion • Negative Emotion • Anxiety • Anger • Sadness 	<ul style="list-style-type: none"> • Family • Friends • Female References • Male References 	<ul style="list-style-type: none"> • Insight • Causation • Discrepancy • Tentative • Certainty • Differentiation 	<ul style="list-style-type: none"> • See • Hear • Feel 	<ul style="list-style-type: none"> • Body • Health • Sexual • Ingestion
Drives	Time Orientations	Relativity	Personal Concerns	Informal Language
<ul style="list-style-type: none"> • Affiliation • Achievement • Power • Reward • Risk 	<ul style="list-style-type: none"> • Past Focus • Present Focus • Future Focus 	<ul style="list-style-type: none"> • Motion • Space • Time 	<ul style="list-style-type: none"> • Work • Leisure • Home • Money • Religion • Death 	<ul style="list-style-type: none"> • Swear Words • Netspeak • Assent • Nonfluencies • Fillers

Chi-squared analyses were used to test group differences among the categories. Group differences were evaluated among gender, racial/ethnic group, socioeconomic status, college status, and United States generational level. Differences were assessed for both the racial/ethnic discrimination writing task and the academic/job-related failure writing task. No significant differences were found between college status, and United States generational level groups on both writing tasks.

4.6.1.1. Group differences in racial/ethnic discrimination task content.

One significant gender difference was found among the psychological construct categories. Women ($M = 0.764, SD = 0.613$) were more likely to write words concerning their “health” than men ($M = 0.2617, SD = 0.469$) $\chi^2(13) = 23.978, p = 0.031$. A series of significant differences were found among the socioeconomic groups. Socioeconomic status group differences were found within the “anxiety” construct [$\chi^2(72) = 99.589, p = 0.017$]. Participants

in the lower and upper socioeconomic status groups ($M = 0.710$, $SD = 0.141$; $M = 0.653$, $SD = 0.681$, respectively) wrote more words linked to anxiety than the middle socioeconomic status group ($M = 0.429$, $SD = 0.636$). Socioeconomic status group differences were significant within the “feel” category $\chi^2(88) = 122.731$, $p = 0.009$. Participants in the upper and lower socioeconomic status groups ($M = 1.584$, $SD = 1.241$; $M = 1.525$, $SD = 1.294$, respectively) wrote more words associated with the “feel” category than the middle socioeconomic status group ($M = 0.785$, $SD = 0.745$). Socioeconomic status group differences were significant within the “body” category $\chi^2(48) = 67.879$, $p = 0.031$. Upper socioeconomic ($M = .710$, $SD = .141$) status individuals wrote more words associated with the “body” category than the middle socioeconomic status group ($M = 0.294$, $SD = 0.463$). No participants wrote words associated with the “body” category in the lower socioeconomic status group.

Socioeconomic status group differences were significant within the “reward” theme $\chi^2(92) = 115.893$, $p = 0.047$. Participants in the lower and middle socioeconomic status groups ($M = 1.615$, $SD = 1.138$; $M = 1.168$, $SD = 0.917$, respectively) wrote more words linked to “reward” than the upper socioeconomic status group ($M = 0.782$, $SD = 0.715$). Also, socioeconomic status group differences were significant within the “focus on future” category $\chi^2(80) = 109.908$, $p = 0.015$. The upper socioeconomic status group ($M = 1.021$, $SD = 0.640$) wrote more words linked to “focus on future” than the lower socioeconomic status group ($M = 0.710$, $SD = 0.141$) and the middle socioeconomic status group ($M = 0.682$, $SD = 0.846$). Lastly, socioeconomic status group differences were significant in the “money” theme $\chi^2(48) = 83.760$, $p = 0.001$. Participants in the lower and upper socioeconomic status groups ($M = 1.010$, $SD = 0.283$; $M = 0.747$, $SD = 0.848$, respectively) wrote more words associated with “money” than the middle socioeconomic status group ($M = 0.194$, $SD = 0.412$).

4.6.1.2. Group differences in academic/job-related failure task written content.

Chi-squared analyses were used to test group differences among the categories. Group differences were evaluated among gender, racial/ethnic group, socioeconomic status, college status, and United States generational level. Only one significant group difference was found in the constructs of this task. Racial/ethnic group differences were significant in the “money” theme $\chi^2(28) = 42.263, p = 0.041$. Black/African American participants ($M = 0.592, SD = 0.550$) wrote more words associated with the “money” category than Latino/Hispanic ($M = 0.460, SD = 0.975$).

4.6.2. Question 2: Differences in Psychological Constructs between Writing Tasks

Differences were expected between the content written in the racial/ethnic discrimination writing task and the academic/job-related failure writing task. Identifying these differences were necessary for understanding the written content. Means of the top 20 psychological constructs for each of the writing tasks are listed in hierarchical order in Table 4.8. A series of paired samples t-tests were completed to test differences in the means of each subcategory from the two writing tasks. Of the 41 categories, 13 significant comparisons were found among the subcategories. These significant comparisons are found in Table 4.9.

Table 4.7.

LIWC Psychological Constructs

<u>Racial/Ethnic Discrimination Task</u>		<u>Academic/Job-Related Failure Task</u>	
<u>Construct</u>	<u>M, SD</u>	<u>Construct</u>	<u>M, SD</u>
1. Social:	11.878 (4.000)	1. Focus on Past:	8.531 (2.835)
2. Focus on Past:	9.453 (3.141)	2. Focus on Present:	7.658 (3.882)
3. Focus on Present:	7.014 (3.300)	3. Work:	7.362 (3.062)
4. Affect:	4.390 (1.660)	4. Affect:	5.877 (2.326)
5. Insight:	3.060 (1.200)	5. Social:	4.244 (3.128)
6. Affiliation:	3.030 (2.365)	6. Negative Emotions	3.646 (2.091)
7. Negative Emotions:	2.320 (1.356)	7. Power	3.627 (1.347)
8. Power:	2.310 (1.748)	8. Achieve	2.602 (1.229)
9. Positive Emotions:	2.071 (1.366)	9. Positive Emotions	2.200 (1.176)
10. Female:	1.828 (2.203)	10. Reward	1.618 (1.203)
11. Work:	1.776 (1.683)	11. Feel	1.382 (0.954)
12. Male:	1.374 (1.967)	12. Sad	1.224 (0.998)
13. Reward:	1.090 (0.877)	13. Risk	1.139 (0.929)
14. Anger:	1.049 (0.958)	14. Affiliation	0.975 (1.085)
15. Leisure:	1.048 (1.187)	15. Anxiety	0.819 (0.998)
16. Feel:	1.048 (0.972)	16. Focus on Future	0.708 (0.793)
17. Family:	1.024 (1.465)	17. Anger	0.647 (1.048)
18. Focus on Future:	0.776 (0.772)	18. Health	0.547 (0.602)
19. Friend:	0.708 (0.919)	19. Leisure	0.529 (0.758)
20. Achieve:	0.666 (0.749)	20. Money	0.482 (0.862)

Table 4.8.

Significant Comparisons of the LIWC Psychological Processes Categories between Writing Tasks

<u>Psychological Construct Subcategory</u>	<u>Racial Ethnic Discrimination Task</u> <i>M (SD)</i>	<u>Academic/Job-Related Failure Task</u> <i>M (SD)</i>	<i>t(df), 95% CI</i>	<i>p</i>
Affect	4.390 (1.658)	5.878 (2.326)	-3.454(33), (-2.364, -0.610)	0.002
Negative Emotion	2.319 (1.356)	3.646 (2.091)	-3.951(33), (-2.010, -0.643)	< 0.001
Sad	0.257 (0.455)	1.224 (0.998)	-5.366(33), (-1.334, -0.600)	< 0.001
Social	11.878 (4.005)	4.244 (3.127)	9.090(33), (5.923, 9.344)	< 0.001
Family	1.024 (1.465)	0.141 (0.286)	3.484(33), (0.367, 1.400)	< 0.001
Friend	0.708 (0.919)	0.104 (0.296)	3.719(33), (0.273, 0.935)	< 0.001
Female	1.828 (2.203)	0.287 (0.836)	4.115(33), (0.778, 2.303)	< 0.001
Male	1.374 (1.967)	0.278 (0.647)	2.953(33), (0.340, 1.853)	0.006
Affiliation	3.030 (2.365)	0.975 (1.085)	4.441(33), (1.113, 3.000)	< 0.001
Achieve	0.666 (0.749)	2.602 (1.229)	-8.505(33), (-2.400,-1.472)	< 0.001
Power	2.309 (1.748)	3.627 (1.347)	-4.030(33), (-1.984, -0.652)	< 0.001
Risk	0.576 (0.813)	1.139 (0.929)	-2.855(33), (-0.964, -0.161)	0.007
Work	1.776 (1.683)	7.362 (3.062)	-9.271(33), (-6.814, -4.359)	< 0.001

4.6.3. Question 3: General Themes of Written Content

In order to further understand the written content in participants' writing tasks, a thorough evaluation of various themes was conducted. Themes that emerged described the types and classifications of the racial/ethnic discrimination experiences and academic/job-related failures that participants chose as the most distressing.

4.6.3.1. Racial/ethnic discrimination writing task.

Three major themes (social situations, language/cultural experiences, overt racism) emerged pertaining to content written in the racial/ethnic discrimination task.

Social Situations. Social situations were discussed highlighting the unexpected nature of racial/ethnic discrimination experiences during daily occurrences. Participants wrote about

experiencing discrimination in dining and eating situations, academic situations, and while fulfilling daily responsibilities. The majority of participants wrote about dining and eating situations in the social situation theme (n = 11). Participants described how these experiences affected their social interactions during the discrimination event. For example, one Mexican male described taking his girlfriend to a fancy dinner for her birthday:

“Things were going well, got seated [next] to a middle aged white couple looks like a real housewife of Austin, just getting sloshed at 5pm... She talks to us condescendingly, surprised we’re eating where she’s eating... She talks about how she wants to have a Mario Lopez fundraiser, because Mexicans must love Mario Lopez... it ruined my night and my girlfriend’s birthday by not getting over it. Personally I felt attacked.”

In addition to restaurant experiences, participants noted discrimination in academic situations. The majority of discrimination in academic situations occurred during participants’ childhood or adolescence (n = 6). One Black/African American, female participant described that the reason the experience was so distressing was because she was “so young” and it was “so early” in her life. She described:

*“...beginning of my 2nd grade year, I had a teacher named... I notice that [teacher] treated me differently than others... she would focus on my behavior the most... Eventually one day, she got so frustrated with me, the sentence “Sand N*gger” came out of her mouth. I told my mom and she was furious. I would say this was my first experience facing racism.”*

Lastly, participants described situations of unexpected discrimination while participating in their normal, daily responsibilities (n=4). These situations ranged from going to the grocery store, the mall, or being out in public. Participants mainly noted the distress of the experience, because of the “random” nature of the event and recognition of how other perceive them. For example, one college freshman noted how she recognized that others saw her as a “stereotype” and only as a Mexican during her freshman orientation at a prestigious university. Another Mexican male described experiencing discrimination while going to the movies and being approached by a possible romantic interest:

“I was going to see a movie. And while I was paying for the ticket, a young attractive girl asked me in a flirtatious way what [ethnicity] I was... I told her I was Mexican. The sly seductive face turned into a painful grimace and she said she was just wondering. And waved me off to keep walking.”

Language/Cultural Experiences. The integration of language, specifically speaking Spanish, and cultural experiences was another theme in the writings (n=9). Notable categories that participants described were experiencing discrimination because of speaking their native language (n=7) or were due to traveling or moving into a new environment (n=6). The majority of participants explained how speaking Spanish in predominately White environments resulted in discrimination. One Mexican, male participant described:

“...A group of us went for a walk near the town center where we conversed and of course spoke in Spanish. At one point in the conversation as we walked a couple of locals began to trash talk us. They called us beaners, wet backs, and other vulgar names just because of the language we were speaking. It frustrated me and angered me...”

Many participants described situations of discrimination after moving to a new city or while traveling, specifically traveling to Europe. One male remarked his experience at a pub in London:

“I was at a bar and met a guy. He noticed my accent and asked where I was from when I answered, he was really aggressive and told me that British people were losing their jobs for immigrants. It made me so upset! I told him I was visiting (I was living in Portugal at the time) and that I had hated this country and couldn't wait to go back to Brazil...”

Overt Racism. Lastly, many situations of overt racism were described in the written content.

Participants described discrimination linked to physical characteristics tied to their race (n=8), intragroup discrimination experiences (n=5), and discrimination experiences exacerbated by other aspects of their identities (n = 4). Discrimination based on physical characteristics was mostly attributed to skin color. A Latino male described a situation during a party at a prominent hotel in the downtown of an urban city:

“I don’t consider myself to be a dark Latino; but the moment I arrived everyone looked my way. I had never/rarely felt so belittled as in that moment, it made me feel as part of the service staff, not one of the invited guests. I had to talk my way into conversations, and prove to these people that I had a brain, and that I had not just crossed the river.”

Additionally, participants described intragroup discrimination. One Hispanic male described how his experience of discrimination from other Hispanic peers made him feel “guilty” and caused him to question his culture:

*“...There was this constant feeling that I shouldn’t be there, that I wasn’t good enough to be Hispanic. I realized that culture is kind of bulls**t. I don’t feel I need to proclaim how proud I am of a culture that I don’t like...”*

Lastly, participants described racial/ethnic discrimination experiences that were tied to their race/ethnicity and another identity. An African American female wrote about being discriminated against during a high school lunch:

“...My friends and I decided to sit at one of the seniors’ tables for lunch... A couple of white seniors got upset and told us, a table of black women, we had to move... I sat and told them that I would get up once I had finished my lunch... one of the white seniors started mocking me... ‘oh look we have a Rosa Parks’... I know that she meant it because I’m black... food was thrown at me... I’m a black woman.”

Group differences. Within group frequency counts of each of the three codes are found in Table 4.10. Chi-squared tests were completed to indicate group differences in the three themes. Differences were assessed among gender, college status, socioeconomic status, racial/ethnic group identification, and United States generational level. No significant differences were found among the groups.

Table 4.9.

Within Group Frequency Counts of the Three Racial/Ethnic Discrimination Writing Task Themes

	<u>Social</u>	<u>Language/Culture</u>	<u>Overt Racism</u>	<u>χ^2(df), <i>p</i></u>
Gender				5.308(2), 0.070
Men	6	5	8	
Women	5	4	0	
Race/Ethnicity				1.623(2), 0.444
African American	3	1	3	
Latino/Hispanic	8	8	5	
SES				5.497(4), 0.240
Lower SES	0	0	2	
Middle SES	8	6	4	
Upper SES	3	3	2	
U.S. Generational Level				4.947(6), 0.551
1 st Generation				
2 nd Generation	2	4	2	
3 rd Generation	5	3	1	
4 th Generation	1	1	2	
	3	1	3	
College Status				2.931(2), 0.231
Enrolled	6	8	6	
Not Enrolled	5	1	2	
Overall	11	9	8	

4.6.3.2. Academic/job-related failure writing task.

Three major themes (Grades/GPA, Presentation/Performance Anxiety, Termination of Employment) emerged pertaining to content written in the racial/ethnic discrimination task.

Grades/GPA. Participants wrote content associated with negative emotions stemming from receiving subpar grades and worries about grade point averages (n=17). Many participants noted high involvement in college courses, yet receiving subpar grades on exams that resulted in disappointing academic performance. One Latina participant described the emotions of receiving a low grade:

“Everything I would write for this professor would receive a ‘C’ or ‘D.’ I used the same writing style that I used for my other history classes, but no matter the hours, the effort, or the office hours I put into it, I would get the same grades. I became so frustrated, tired, and annoyed that I decided on the last moment not to do the final paper that would count for 40% of the grade. What would be the point? I ended up skipping the class for three weeks, I did try occasionally to do readings for the final paper, but after 1-2 hours I would give up... I feel angry and frustrated to this day...”

In addition, participants described the effects a low grade in a course could have on their grade point averages. A Latina participant described:

“After doing all my assignments, after studying all night long for that test and after getting good grades for the whole semester, that final exam lowered my class grade to a C, and my GPA went down a lot! I felt frustrated and I think that’s not fair that after all the effort I put into it. Now, I’m working extra hard to raise my GPA but, honestly, I feel like that could happen again and it makes my college experience kind of pointless.”

Presentation/Performance Anxiety. Another major theme was content written regarding participating in academic and work presentations, giving speeches, or speaking up in meetings or to superiors (n=12). An African American female described:

“My most recent event... I had a middle school group visit our theater building. I was asked to speak to the group about the work I go with in the theater, which should not have been a problem – to speak in front of a group. I’m not sure what triggered my anxiety – but I was not able to form any complete and reasonable sentences... I could feel my blood pressure rise, I felt like I was literally melting right in front of the group as well as my colleagues...”

In addition, another participant accounted presenting a paper that he had prepared for:

“I was presenting a paper for a big crowd and I was so nervous, I think I had a panic attack. I was sweating and shaking and it was like everyone there could realize what was happening... nowadays every time I have to make presentations, I take anxiety pills.”

Termination of Employment. Lastly, participants described being terminated from their employment (n=6) as an academic/job-related failure experience. As expected, participants described how the intense distress this experience causes. One Mexican male summed up his experience:

“Of all the many different jobs I had, and there’s been a lot, I’ve only been fired from one. That one time has haunted me since... I was dispatch for a claim... I try to make angry people happy... I tried everything to make her happy but she would have none of it. She finally just started cursing me out. So I cursed her out and when she asked me for my name and I gave her somebody else’s name. The manager found out and I got fired. I don’t think I’ve ever felt more ashamed and like a failure than that day.”

Many of the participants who described these experiences mentioned the intensity of the negative emotions they experienced and how long-lasting the effects of were.

Group differences. Within group frequency counts of each of the three codes are found in Table 4.11. Chi-squared tests were completed to indicate group differences in the three themes. Differences were assessed among gender, college status, socioeconomic status, racial/ethnic group identification, and United States generational level. No significant differences were found among the groups.

Table 4.10.

Within Group Frequency Counts of the Three Academic/Job-Related Failure Writing Task Themes

	<u>Grades/GPA</u>	<u>Performance/ Presentation Anxiety</u>	<u>Termination of Employment</u>	<u>χ^2(df), <i>p</i></u>
Gender				2.914(2), 0.233
Men	12	7	5	
Women	5	5	0	
Race/Ethnicity				1.216(2), 0.544
African American	4	4	2	
Latino/Hispanic	13	8	3	
SES				0.889(4), 0.926
Lower SES	2	1	0	
Middle SES	10	7	4	
Upper SES	5	4	1	
U.S. Generational Level				6.478(6), 0.372
1 st Generation	7	2	0	
2 nd Generation	3	5	3	
3 rd Generation	3	1	1	
4 th Generation	4	4	1	
College Status				4.828(2), 0.089
Enrolled	15	6	3	
Not Enrolled	2	6	2	
Overall	17	12	5	

4.6.4. Exit Interviews

Each participant completed an exit interview upon completing the study. The exit interviews were conducted for participants to provide their perspective on the use of writing to induce emotions from their racial/ethnic discrimination experiences. Participants were asked five questions to assess their views on the writing tasks regarding (1) Reasons for writing about particular racial/ethnic discrimination experience, (2) negative emotions experienced while writing of racial/ethnic discrimination experience, (3) bodily reactions experiences while writing about the racial/ethnic discrimination experience, (4) retrospective coping mechanisms when

experiencing the racial/ethnic discrimination experience, and (5) association of gender to racial/ethnic discrimination experience.

Why did you choose to write about that one particular experience? Participants described choosing the racial/ethnic discrimination because of two specific reasons. One reason noted by many participants was that this was the first discrimination experience they could recall experiencing, resulting in feeling intense emotions. A subset of participants described that this was the only discrimination experience they had experienced. Participants expressed how the event they described “hurt the most” and was the “most memorable” in their lifetimes. Those participants that wrote about their first experiences accounted how difficult this situation was process and how it was the experience that caused the most distressing emotions, such as anger, sadness, and fear. These responses indicate that participants did in fact follow the instructions of the prompt. Four participants described that they chose this experience, because it was the most recent experience of discrimination. These participants noted that it was the experience that was easiest to recall.

On one of the instruments, we asked you about some negative emotions you might be experiencing. Can you please explain more about any of these negative emotions? Descriptions of emotions experienced while writing varied among the participants. A subset of participants described how they felt angry and frustrated during the task, with one participant describing feeling “hostile” during the reflection period. Many participants described feeling anxiety and fear. Along with these emotions, some participants noted experiencing sadness while recalling their event. Lastly, participants expressed not experiencing any emotions and described experiencing apathy.

Can you please describe any bodily reactions that arose for you during the task?

Participants noted many bodily reactions during the writing and reflection of their discrimination experiences. They described muscle tension, sweating, feeling jittery, dry mouth, heart palpitations, increased heart rate, and fist clenching. Two participants stated that this question made them desire a cigarette in order to decrease the sensations. One participant described feeling an “allergic reaction” when stressed and that he was feeling that currently.

When the experience you wrote about occurred, what did you do at the time to cope with the encounter? The majority of participants responded that they did not utilize any coping mechanisms after experiencing the discrimination event. Participants that described adaptive coping mechanisms detailed participating in self-reflection and seeking support from friends and family. Participants also described maladaptive coping techniques. One participant noted that he responded by getting into a physical altercation, which alleviated tension. Other participants described using cigarettes, alcohol, and drugs as a way to cope with the discrimination event.

Do you feel that any of your experiences of racial/ethnic discrimination are connected to your gender? If so, please describe in detail. Participant responses to this question varied based on the participant’s gender. Male participants described that they felt their gender led to more experiences of discrimination. They noted that they felt women were not seen as threatening. Two male participants described how women’s physical attractiveness could be protective against racism and discrimination. Female participants described experiencing double discrimination and that felt their race exacerbated sexism experiences.

Chapter 5. Discussion

The present study aimed to examine the influence of racial/ethnic discrimination experiences on cigarette use, through measurement of cigarette craving and negative affect. The study sought to introduce a novel method of testing discrimination experiences using a writing task in order to experimentally manipulate this variable. Various findings of the study, as well as the method used in the study are discussed. In addition, the exploratory questions used to gather information about the writing task and the study are discussed. Goals of this study were to (1) better understand the influence of racial/ethnic discrimination on cigarette craving, (2) indicate if men and women are influenced differently by racial/ethnic discrimination, and (3) determine the appropriateness of writing tasks to cue racial/ethnic discrimination.

5.1. General Findings on Research Hypotheses and Questions

Cigarette craving significantly increased after completion of the two writing tasks. However, there were no significant differences in these changes posttest between the racial/ethnic discrimination writing task and the academic/job-related failure writing task. In addition, gender differences were expected in cigarette craving and negative affect scores. However, no significant differences between gender groups were found between post-task craving and negative affect scores. Lastly, negative affect did not significantly increase from baseline and in response to the two writing tasks. Assessment of the written content was an important component of this study, due to the novel nature of its method and to better understand group differences in the content. Participants utilized the writing task as a way to identify racial/ethnic discrimination experiences. Group differences were found among the LIWC psychological constructs assessed in the written content. Among the LIWC psychological constructs most associated with the written content, seven of the top ten constructs were the same

between the two tasks (Social, Focus on Past, Focus on Future, Affect, Negative Emotions, Power, Positive Emotions). In addition, evaluation of the written content resulted in various themes. For the racial/ethnic discrimination writing task, three themes emerged (Social, Language/Cultural Experience, Overt Racism). For the academic/job-related failure writing task, three themes emerged (Grades/GPA Concerns, Performance/Presentation Anxiety, Termination of Employment). Despite similarities among the constructs, various significant differences were evident between the tasks. These differences are important themes necessary for future research and to understand the type of content that affect these types of experiences for African American and Latino smokers.

5.2. The Role of Racial/Ethnic Discrimination in Cigarette Craving

5.2.1. Experimental Findings

The present study sought to understand the connection between racial/ethnic discrimination and cigarette craving. A significantly greater cigarette craving post-racial/ethnic discrimination task score was expected, in comparison to the post- academic/job-related failure task score. However, the change in craving scores were not statistically different. To the author's knowledge, this is the first experiment to examine racial/ethnic discrimination as a predictor of cigarette craving. Based on the results from this study, changes in cigarette craving in response to writing tasks that elicit negative affect are similar.

Increase of cigarette craving in response to the racial/ethnic discrimination writing task supports the theories on racial trauma, or race-based stress (Carter, Lau, Johnson, & Kirkinis, 2017). Experiencing racial/ethnic discrimination was predicted to influence cigarette craving, due to the subsequent increase of negative affect. Often, definitions of trauma, traumatic stress, and trauma treatment stem from European perspectives (Carter, Lau, Johnson, & Kirkinis, 2017).

However, racial trauma, or the cumulative exposure of trauma due to one's race, culminates in severe psychological and physiological trauma resulting in maladaptive behaviors (Ahmed, Mohammed, & Williams, 2007; Carter, Lau, Johnson, & Kirkinis, 2017). Typically, greater racial/ethnic discrimination is associated with greater psychological distress (Carter, Lau, Johnson, & Kirkinis, 2017).

In a multidimensional conceptualization model of racism-related stress, individual variability across internal characteristics, sociocultural variables, and affective and behavioral responses can explain why some individuals come to experience increased negative mental health in response to discrimination (Harrell, 2000). Within this model, negative attributions of stressful events have been found to lead to longitudinal depressive symptoms (Harrell, 2000). Lastly, emotional reactivity may link discrimination experiences to depressive symptoms (Harrell, 2000). Subsequently, research hypothesize that people of color make themselves racially innocuous to avoid racial trauma, anticipate the emotional response and needs of White individuals in interracial contexts, and behave in ways to maintain psychological health to guard against White supremacy (Carter, Lau, Johnson, & Kirkinis, 2017; Liu, et al., 2013).

5.2.2. Conceptualization of Racial/Ethnic Discrimination

A goal of the study was to understand the conceptualization of racial/ethnic discrimination experiences and how they affect cigarette use over time. However, differential interpretation of discrimination, various protective factors, and associated discrimination-related themes might explain the results found in the current study.

5.2.2.1. Racial/ethnic discrimination as a cigarette use determinant.

The present study examined cigarette craving, which can explain the maintenance of cigarette use over time and difficulties in cessation. This was primarily important for ethnic

minorities, since ethnic minority smokers have more difficult experiences in cessation than White smokers (Centers for Disease Control and Prevention, 2015). However, racial/ethnic discrimination might play a role in the initiation of cigarette use, than the other two cigarette use determinants. As stated previously, the literature indicated that experiencing racial/ethnic discrimination causes negative affect, which is associated with increased use of maladaptive coping mechanisms (Ahmed, Mohammed, & Williams, 2007). Considering this connection, negative affect is highly correlated to initiation of cigarette use, especially in late adolescence and young adulthood (Centers for Disease Control and Prevention, 2015). Research has concluded that experiencing negative affect at age 16 is predictive of smoking behaviors in the two subsequent years (Mason, Hitch, & Spoth, 2009). In addition, smokers are more likely to become regular smokers later in life if they experience depressive symptoms (Munafo, Hitsman, Rende, Metcalfe, & Niaura, 2008).

Participants who experience racial/ethnic discrimination in adulthood, which is linked to depression (Ahmed, Mohammed, & Williams, 2007), might initiate smoking to cope with the negative affect. Many participants in the present study accounted experiencing childhood/adolescent discrimination. For example, a Mexican female described the discrimination event that “hurt the most” when she was 12 years old, accounting how the experience led to her feeling “embarrassed” and “alone.” In her exit interview, she described that she “cried” by herself, experienced anxiety symptoms, and still feels sad about the experience to this day. It is likely that these early life experiences might be connected to her initiation of cigarette use. Possibly, these experiences are representative of the environments these participants grew up in, leading to a greater likelihood of early experiences of intense negative affect. These findings greater emphasize the importance of evaluating social determinants of

health and cultural stressors among ethnic minority smokers (Ahmed, Mohammed, & Williams, 2007; Centers for Disease Control and Prevention, 2015).

5.2.2.2. Racial/ethnic discrimination protective factors.

Results from the study might be representative of necessary inclusion of various protective factors affecting the relationship between the effects of racial/ethnic discrimination and cigarette craving. Surprisingly, not all individuals who experience racial/ethnic discrimination report negative emotions in response (Harrell, 2000). Sociocultural factors, like ethnic identity, may be protective against the experiences of discrimination (Harrell, 2000). Risk and resilience framework suggests that individuals with high levels of racial/ethnic identity minimize the potential negative impact of racial/ethnic discrimination (Tynes, Umana-Taylor, Rose, Lin, & Anderson, 2012). In addition, individuals with high levels of self-esteem are postulated to have more control and mastery over their environment, and are more likely to use adaptive coping strategies. The mechanism of cigarette use as it relates to racial/ethnic discrimination might include moderators of ethnic identity and self-esteem. For example, the negative effects of online racial/ethnic discrimination on African American adolescents' anxiety were significantly minimized for those who reported higher ethnic identity and self-esteem (Tynes, Umana-Taylor, Rose, Lin, & Anderson, 2012).

Furthermore, an individual's age impacts how they perceive and interpret racial/ethnic discrimination events (Schmitt, Branscombe, Postmes, Garcia, & Hinshaw, 2014). Children are more likely to experience psychological distress from racism than adults (Schmitt, Branscombe, Postmes, Garcia, & Hinshaw, 2014). Specifically for Black Americans, the effect of perceived racism on psychological distress was larger for children than adults (Lee & Ahn, 2013). With the development of self-esteem, psychological distress decreases in response to discrimination

experiences, which typically occurs with increasing age (Schmitt, Branscombe, Postmes, Garcia, & Hinshaw, 2014). Surprisingly, adults who report racial/ethnic discrimination experiences are more likely to utilize adaptive coping mechanisms (Contrada, et al., 2000). The average age of participants included in this study was 28.24, and these individuals might have developed buffers of the effect of discrimination over time. Although these participants are using cigarettes, they might also have adaptive coping mechanisms to deal with negative affect experiences.

In addition to other protective factors, ethnic minorities utilize psychological distraction to cope with the harsh effects of racial/ethnic discrimination. In response to racial/ethnic discrimination, authors have introduced the influence of denial, in which individuals experiencing discrimination refuse to see themselves as targets (Cunningham, et al., 2012; Nyklicek, Vingerhoets, Van Heck, & Van Limpt, 1998). Lastly, some research has discussed forms of denial as a protective factor when experiencing discrimination. Denial is used to protect against negative health consequences of discrimination (Nyklicek, Vingerhoets, Van Heck, & Van Limpt, 1998), creating more disconnect between discriminatory events and maladaptive behaviors.

5.2.2.3. Racial/ethnic discrimination gender differences.

Greater increase in cigarette craving and negative affect was expected among women than men in response to the writing tasks. Women are more likely than men to relapse from cigarette smoking, due to negative mood and cigarette craving (Aguirre, et al., 2015; Xu, et al., 2008). Women typically experience greater posttest craving, stress, and negative affect in studies using the cue-reactivity paradigm (Wray, et al., 2015). However, no significant differences were found among the two gender groups in this study. Women in the study did experience greater, but not significant, increases in cigarette craving and negative affect than men. These findings

align with the expected gender effects for cigarette craving and negative affect. However, the study findings also introduce important differences and similarities in the types of discrimination experiences and the coping mechanisms men and women use.

The intersectionality of gender and cigarette smoking, in relation to racial/ethnic discrimination is an important consideration. In a recent meta-analysis, non-significant differences were found in the amount of discrimination-related distress experienced between men and women, even when controlling for racial group identification (Carter, Lau, Johnson, & Kirkinis, 2017). Conversely, literature has concluded that ethnic minority men suffer more psychological distress from racial/ethnic discrimination than women (Assari, Moazen-Zadeh, & Caldwell, 2017; Wiehe, Aalsma, Liu, & Fortenberry, 2010).

5.3. Language Processing of Written Content

5.3.1. LIWC Constructs

Six of the LIWC constructs were significantly more associated with content in the racial/ethnic discrimination task than the academic/job-related failure writing task (Social, Family, Friend, Female, Male, Affiliation). The written content represented the social, systematic nature of discrimination. Evaluation of the written content confirmed that these experiences are products of social integration, while participants were eating, taking care of daily responsibilities, and traveling or moving. Distress created from these experiences is often exacerbated by the “random” nature of their occurrence in everyday life (Ahmed, Mohammed, & Williams, 2007). In addition, participants described how these experiences affected family members or friends. For example, one African American female described how experiencing discrimination affected the relationship with her best friend in a social setting:

“Me and one of my best friends who happens to be white were out shopping with some other friends. We all planned to go out and eat after that. One of my other friends received a call from her grandparents were throwing a party at their lake house... I was pretty excited because the summer was just starting... For some reason as I got to the check out they all decided to start walking towards the exit... I called out to my bestie... She came over to me and said that the girl whose grandparents are throwing the party are hella strict on who she brings... Long story short they were racist... So my best friend still went and left me stranded... I thought this kind of stuff happened in the movies...”

Many participants explained how their discrimination experiences occurred with other friends and family members of their same race. These experiences also highlight an awareness of one’s affiliation or group they identified with. Authors note how these experiences affect an individual’s perspective of their racial identity and the groups they identify with (Ahmed, Mohammed, & Williams, 2007).

Seven of 13 LIWC comparisons were significantly more associated with content in the academic/job-related failure writing task than the racial/ethnic discrimination writing task (Affect, Negative Emotion, Sad, Achieve, Power, Risk, Work). Higher means of “affect,” “negative emotion,” “sad,” and “work” were expected in the academic/job-related failure writing task content. The task was specifically cueing negative affect and asking participants to write about either work-related or academic-related failures. Therefore, these themes are expected to be more significantly associated with this task and suggest that participants followed instructions given in the prompt. The constructs of “achieve,” “power,” and “risk” are expected to be associated with this task, due to them being representative of the importance of work or academic advancement. Loss of achievement and power might lead to assumed amount of risk. An African American male described one of the most distressing examples of this loss due to a work failure:

*“I was hired at *****... I was given a plane ticket to fly to Dallas for a training for a week... I was excited about this due to my demand for a job at that time and my interest and strong background in computer tech support... The second day was fun and educational. It was very interactive and they made me feel like a part of the team... On the 3rd day about halfway through training I was called out of training in the conference room to meet with HR. At that time they informed me that they would not be able to continue with employment...”*

These constructs also highlight the difficulty individuals have in overcoming academic and job-related failures. Individuals are seen as strong, resilient people when they overcome racial/ethnic discrimination. Also, experiencing racial/ethnic discrimination is a societal, systematic stressor that is representative of the environment and not the individual (Ahmed, Mohammed, & Williams, 2007). However, high endorsement of content associated with these three constructs could be due to school or work failures being representative of the individual. These findings align with theories explaining locus of control. As it relates to job and academic achievement, an individual’s perspective of their locus of control impacts their success in overcoming challenges (Caliendo, Cobb-Clark, & Uhlendorff, 2015). Furthermore, individuals with an internal locus of control are more successful in overcoming challenges (Caliendo, Cobb-Clark, & Uhlendorff, 2015).

5.3.2. Language Processing of Gender-Related Written Content

Interestingly, multiple men described in the exit interviews that women have an “easier” experience with discrimination. Some men noted that the discrimination that women receive can be interpreted as “compliments” and that they can “use their sexuality” to their advantage to mitigate effects of negative interactions with others. The majority of men endorsing this view detailed how situations of discrimination as ethnic minority men can escalate quickly. A Chilean male described his subsequent aggression in the racial/ethnic discrimination task:

“The most recent discrimination I can remember was in Santiago, Chile. It was a Wednesday and we went to the club with a couple of my Chilean friends. We had a good time and when it was time for me to go... I was called a ‘gringo’ by one of the people in the club.”

He explained how he coped with this experience in his exit interview:

“Eventually [it] led to a fight, afterwards friends calmed me down.”

This experience embodies the reported fear that the ethnic minority men in this sample experience, due to how they are perceived. Ethnic minority men, especially black men, are perceived as being more threatening and violent than women (Irwin & Umemoto, 2012).

However, men are protected from experiencing negative affect of discrimination experiences.

For example, Black men are buffered from experiencing symptoms of anxiety associated with racial/ethnic discrimination (Banks, Kohn-Wood, & Spencer, 2006). Our findings support this research, in that men experienced very little changes in negative affect over the course of both writing tasks. A Latino male participant detailed his coping mechanism during the exit interview:

“I ignored my anxiety in a way that I feel it affected my mental health. I wish I dealt with it when it happened.”

Various differences were evident between men and women. Women were more likely to write content associated with their health, compared to men. Women writing content associated with “health” described fears about their safety in various social situations threatening their personal space. One African American/Black female participant wrote about her experiences living in a co-op residential space:

“I would get a bit rowdy as did majority of those living there, however I would be the only one criticized or to receive flack... To feel as if you must shelter yourself because you will be perceived/judged more harshly, hurts... I’m glad I no longer live there.”

In addition, a Black/Hispanic female participant wrote:

“This co-worker/friend had offered for me to come over to her place to wash clothes...Once I got there I was two loads in, when her male white roommate came home. She introduced me. I extended my hand to shake, and he walked right past me ignoring my greeting... My friend said not to worry that he just doesn’t like black people. I felt embarrassed and all of a sudden scared... The guy called my friend to the back room... They argued... I told her that I didn’t feel comfortable and that I wanted to leave immediately. I remember taking my wet clothes out of the wash and packing up...”

These situations highlight the importance of examining the type of settings in which women experience discrimination. In a cross-sectional study, authors concluded that perceived discrimination was associated with discrimination in school, work, and neighborhood settings for adolescent girls, but not for adolescent boys (Wiehe, Aalsma, Liu, & Fortenberry, 2010).

In addition, these examples highlight the exponential impact of experiencing gender-related racial/ethnic discrimination. A goal of the current study was to understand if gender was predictive of racial/ethnic discrimination experiences. The perspective of intersectionality explains how associated inequalities depend upon and construct one another, creating a “double discrimination” experience (Cole, 2009). Intersectionality can explain how these two situations are intensified because of the additive effects of gender (Cole, 2009), possibly impacting a woman’s personal space and safety. Participants endorsed views of double discrimination in the exit interview component of this study. Female participants revealed that they felt their gender led to more experiences of discrimination. One participant described:

“I feel like being female as well as black is another tack onto minority status.”

It would be expected that this “double jeopardy” would lead to increase of cigarette craving or negative affect. Research confirms that gender discrimination and sexism, like racial/ethnic discrimination, have significant impacts on an individual’s well-being (Swim, Hyers, Cohen, & Ferguson, 2001). However, ethnic minority women who are subjected to multiple discrimination experiences develop protective mechanisms that buffer negative effects. For example, Black

women who reported three or more experiences of racial/ethnic discrimination exhibited similar inflammatory levels as those who did not report experiences of discrimination, resulting in less risk for cardiovascular disease (Cunningham, et al., 2012).

5.3.3. Language Processing of Socioeconomic Status Differences

Important differences were found between the three socioeconomic status groups. Content among participants in the three socioeconomic (SES) groups were different when examining anxiety-, feel-, body-, reward-, focus on future-, and money-related subcategories. The differences highlighted multiple themes for the upper SES status participants, with many writing content related to “focus on future,” “body,” and “feel,” distinct from the other two groups. Similarities were found among the lower and upper SES status groups among content related to “anxiety” and “money.” Lastly, lower and middle SES status individuals wrote reward-related content.

Distinct differences among the upper (SES) status individuals highlight various stressors experienced by ethnic minority, non-poor populations. For the majority population, the association between SES and health has been shown to be positive, linear, and monotonic, with each increase in SES standing, we expect improvements in health (Alder & Rehkopf, 2008). However, upper SES African American/Black and Latino/Hispanic individuals are significantly more likely to experience acute and chronic discrimination, than White counterparts (Colen, Ramey, Cooksey, & Williams, 2018). Upper SES African Americans are just as likely to experience chronic discrimination as their other SES counterparts (Colen, Ramey, Cooksey, & Williams, 2018). For Latino/Hispanic individuals, as income gains over time they experience more frequency of encounters of chronic discrimination (Colen, Ramey, Cooksey, & Williams, 2018). The increase in frequency and probability of experiencing racial/ethnic discrimination

among this SES group could be due to increased exposure to White individuals in integrated educational, occupational, or neighborhood settings (Colen, Ramey, Cooksey, & Williams, 2018). Authors have linked frequent exposure to discrimination to various deleterious health outcomes, such as variable sleep patterns (Tomfohr, Pung, Edwards, & Dimsdale, 2012), increased physiological stress response (Ahmed, Mohammed, & Williams, 2007), and nocturnal blood pressure dipping (Tomfohr, Cooper, Mills, Nelesen, & Dimsdale, 2010). These effects explain the correlation between racial/ethnic discrimination and body- and feel-related content among upper SES individuals. For example, an upper SES Latino/Hispanic male participant wrote about his experiences as a young boy:

“I was jumped and beat until the people that did the bruising couldn’t swing back. I was a young boy... all because I believe that they thought I was just some rich white kid who had everything given to him... my mother worked real hard raising me and was an employee for the department of motor vehicles...”

The increase of racial/ethnic discrimination experiences may be related to upper SES individuals’ content associated with a focus on the future, in comparison to the other SES groups. Upper SES ethnic minorities are more likely to be in integrated educational, occupational, or neighborhood settings (Colen, Ramey, Cooksey, & Williams, 2018). Unlike their White counterparts, they do not always experience the benefits that White individuals gain as their incomes increase (Colen, Ramey, Cooksey, & Williams, 2018). The continued exposure to race-based unfair treatment mutes the associated gains with increasing SES, leading to frustration and discouragement in upward mobility (Colen, Ramey, Cooksey, & Williams, 2018). An African American/Black male participant explained how the benefits of higher SES does not eliminate race-based unfair treatment:

*“I was at *****, a [high-end] store that I go to often... I was wearing a hoodie that day... as I was walking around the store I noticed the store clerks were talking on their walky talkys and then look over at me... I began sweating and feeling really uncomfortable... I was scared that if I left the store too soon, it would be too alarming. So I stayed in the store longer than I wanted to just for them to be sure that I was not stealing... as I got closer to the door my hearted started beating really fast and I prayed the sensors did not randomly go off...”*

Written content were similar among the upper and lower SES concerning anxiety- and money-related themes. Upper SES individuals writing content related to high anxiety contradicts the stress process model (Pearlin & Menaghan, 1981). The Stress Process model identifies and specifies the interrelationships among experienced stressors and social and personal resources that may have direct effects and/or mediate or moderate the health consequences of stress exposure (Turner, 2010). The model assumes that variations in stress exposure, and in the availability of social and personal coping resources, arise out of the conditions of life to which the individual has been, and is being, exposed. The model postulates that the well-established relationships between race, SES, gender, and marital status and health arise to a substantial extent from socially patterned differences. Therefore, those who are high in SES would be expected to experience low levels of stress. However, higher occupational status was related to increased perceived stress among Scottish men (Macleod, Davey, Metcalfe, & Hart, 2005). In a study assessing Mexican American women’s associations of SES (measured by income and education) and perceived stress, women with higher SES endorsed lower perceived stress and greater control of their life (Gallo, et al., 2013). However, as educational attainment increased, an increase of chronic stress related to work and caregiving was reported (Gallo, et al., 2013).

5.3.4. Language Processing of Racial/Ethnic Differences

Racial/ethnic group differences in baseline cigarette craving and negative affect were not evident in the findings of the study. However, Black/African American participants wrote more content associated with “money” than Latino/Hispanic participants on the academic/job-related

failure writing task. Concerns with money or financial aspects may be representative of societal differences between African Americans and Latinos. Black Americans have a higher poverty level (20%) than Hispanics (16%) and Whites (8%) (Kaiser Family Foundation, 2017). For Black Americans, economic stressors are significantly related to quality of life, while controlling for educational level, age, liberal views, and religiosity (Gabbidon & Peterson, 2006). Authors of this research noted that this stressor spanned across SES groups, ranging from Black business owners to those in the poverty level (Gabbidon & Peterson, 2006). For business owners, they noted that financial stressors might impact mental health because of the obvious concern about the success of one's business. However, it might also be representative of the fact the business is failing because of their race or the worries of not receiving financial support (e.g., loans) because of they are Black.

Despite financial concerns and high numbers of members living below the poverty level, social disadvantage contributes to growing disparities between Black Americans and the general American population (Wulczyn, Gibbons, Snowden, & Lery, 2013). Black poverty rates have been associated and explained in terms of family structure, education, employment, and housing (Ousey, 1999; Wilson, 1987). Concerns of poverty levels and finances highlight the necessary examination of social determinants of health. For example, poverty levels have been correlated to differential placement of foster children into foster homes between Black and White children (Wulczyn, Gibbons, Snowden, & Lery, 2013). These concerns are evident of environmental and social factors, contributing to negative affect among Black Americans.

5.4. Measurement of Racial/Ethnic Discrimination Experiences

Examination of the appropriateness of the methods used in this study was an important goal. A novel method was introduced in order to measure racial/ethnic discrimination within the

cue-reactivity paradigm. In this study, racial/ethnic discrimination was conceptualized as a traumatic event (Ahmed, Mohammed, & Williams, 2007). As such, the Pennebaker Writing Task was used to assess racial/ethnic discrimination, allowing for pre- and post-measurements to be conducted. The writing task allowed for participants to use their own experiences to induce negative emotions (Pennebaker, 2004). Results from the study could have been impacted by this measurement of racial/ethnic discrimination. Generally, experiences that induce negative affect are used to experimentally test cigarette craving in the lab, in comparison to a neutral task (Heckman, et al., 2013). These negative affect manipulations range from participating in impromptu public speaking to exposure of stressful imagery (Heckman, et al., 2013).

The findings may represent an indirect link between discrimination experiences and cigarette use. Models of cigarette use emphasize the relationship of perceived stress and use of cigarettes (Colder & Chassin, 1993; Heckman, et al., 2013). Taken from this model, acute physical or psychological stress increases subjective desire to smoke (Childs & de Wit, 2010). The method of introducing racial/ethnic discrimination in this study might have impacted its connection to cigarette craving. Racial/ethnic discrimination was predicted to create a more intense response for ethnic minority smokers, than other negative affect experiences not based on race/ethnic group identification. Possibly, significant results would be found if a less active comparison group was assessed.

Participants reported experiencing more distress when experiencing their negative affect events than their racial/ethnic discrimination events. The distress levels that were reported were significantly related to cigarette craving scores reported after the academic/job-related failure task, but not the racial/ethnic discrimination task. This finding supports the application of the cue reactivity paradigm used in measuring cigarette craving to better understand the maintenance of

cigarette use (Heckman, et al., 2013). The present study also supports the application of this paradigm in an ethnic minority smoking population using a writing task to elicit negative affect. The findings reinforce use of methods linking *in vivo* emotional reactions elicited by the recall of past negative affect experiences, like academic or job failures, are representative of actual feelings of distress experienced during past events (Pennebaker, Boyd, Jordan, & Blackburn, 2015).

5.5. Contributions to Research Literature

To the author's knowledge this is the first attempt to experimentally manipulate racial/ethnic discrimination for cigarette craving. The present study introduced use of writing and reflection as a type of cue reactivity. Findings from this study suggest that the novel method is effective in inducing negative affect. Most importantly, this study emphasizes the use of experimental methods to better understand cigarette craving among African American and Latino smokers. Also, this study emphasizes the necessary replication of various research methods examining cigarette use behaviors within ethnic minority populations. Without replication, conclusions made from past studies may not be representative of all smokers. Unique and innovative research methods lead to better understanding of cigarette-related health disparities. In addition, the current study used a mixed-methods approach with qualitative analyses. The qualitative analyses and exit interviews concluded important findings on the nature of racial/ethnic discrimination experiences among current cigarette users. The qualitative component of this study concluded that all participants experienced some form of discrimination, that these experiences led to intense negative emotions, and that reflection on these experiences still elicit negative emotions and bodily reactions. These experiences happen in multiple settings and at any stage of life, among varying socioeconomic status levels and across genders.

Findings from the present study inform the role of racial/ethnic discrimination in cigarette use. Racial/ethnic discrimination was predicted to play a role in the maintenance and unsuccessful cessation, through craving, of cigarette use among African American and Latino smokers. Therefore, cue of these experiences was expected to increase cigarette craving within this population. Recall of and reflection on racial/ethnic discrimination experiences led to an increase in cigarette craving similar to recall of and reflection on job- or academic-related failures. Possibly, experiencing discrimination, along with other stressors, maintains cigarette use over time. Another possibility is that experiencing racial/ethnic discrimination, along with other cultural stressors, impacts initiation of cigarette use. The current study supports the role of negative affect in cigarette craving among African Americans and Latino smokers, because retrospective ratings of distress experienced in the academic/job-related failure task was significantly related to cigarette craving. Few studies have evaluated cigarette use behaviors among ethnic minority populations (Brodish, et al., 2011; Brondolo, et al., 2015). The present study concluded that negative affect contributes to the cigarette use among African American and Latino smokers. More specifically, academic and work stressors impact cigarette craving among smokers.

5.6. Implications for Clinical Intervention

Despite equal to or lower rates of smoking, ethnic minority smokers have cessation rates lower than those of White smokers (Centers for Disease Control and Prevention, 2015). These cessation rates impact the high numbers of smoking-attributable diseases experienced by African American and Latino smokers later in life. More successful cessation programs could contribute to lower the high rates of diabetes, cardiovascular diseases, and obesity among this population (Centers for Disease Control and Prevention, 2015). Greater efforts to develop treatment

protocols and prevention programs are necessary to decrease the numbers of ethnic minority smokers. Existing literature has indicated that ethnic minority smokers who initiate smoking at early ages are of greater risk for dependence (Lee & Ahn, 2013; Mason, Hitch, & Spoth, 2009). Prevention programs are of utmost importance for this population, in order to prevent initiation of cigarette use.

Findings from this study emphasize the need for culturally informed treatment protocols for African American and Latino smokers to increase cessation rates. Treatment that focuses on processing negative affect stemming from discrimination experiences would be beneficial for this population, especially since the majority of participants described use of maladaptive coping mechanisms. In addition, treatment teaching coping mechanisms to help individuals with intense racial/ethnic discrimination is necessary, especially considering the results on socioeconomic status in this study. Development of ethnic or racial identity may be a target of intervention for this population. Racial identity may be protective against the effects of racial/ethnic discrimination (Tynes, Umana-Taylor, Rose, Lin, & Anderson, 2012). Assessing patients' racial identity, as well as their own cultural identity, may lead to greater utility in dealing with discrimination and experiencing less negative affect. Along with a focus on coping mechanisms, treatment should focus on discussions surrounding the development of racial identity among those with low in racial identity.

5.7. Limitations of the Present Study and Suggestions for Future Research

The present study had many limitations. First, the use of an academic/job-related failure writing task as a comparison group to the racial/ethnic discrimination task. This utilized an active comparison group, which limited the possible effects of the racial/ethnic discrimination writing task. If participants were given a neutral prompt in comparison, the results of the study may have

been more powerful. Participants' increase in craving due to negative affect from the racial/ethnic discrimination writing task was being compared to craving after experiencing negative affect from academic/work failures. Comparison of racial/ethnic discrimination to academic/job-related failures was another limitation of the study. Results from the study might have been affected from negative affect "bleed over" affects. Simply, it might be too difficult to distinguish between negative affect related to one's race/ethnicity and negative affect related other aspects for ethnic minority populations, although participants did not explicitly write about their race being a factor in their academic/job-related failures. Possibly, the first step in understanding the role of racial/ethnic discrimination in cigarette craving would be to examine if there was any effect of racial/ethnic discrimination. This initial connection was assumed, due to the existing literature. However, an important consideration was overlooked. Future experiments should examine racial/ethnic discrimination in comparison to neutral stimuli. In addition, research should evaluate positive aspects of smoking behaviors among this population. African American and Latino individuals are more likely to be intermittent smokers (Centers for Disease Control and Prevention, 2015), which might be indicative of solely smoking in social settings. This smoking pattern may link cigarette use to positive affect.

Another limitation of the study was the sample size and recruitment of participants. Although the sample size was sufficient for the main quantitative analyses, a bigger sample would increase the power of the study. With a bigger sample size, comparisons of two active writing tasks eliciting negative affect might have led to desired, expected effects. Between-group comparisons were also limited because of the sample size. Differences among Black/African American and Latino/Hispanic groups were not aims of the study. However, if equal and bigger numbers of these racial/ethnic groups were recruited, then more representative conclusions of

racial/ethnic group differences could be made. These conclusions might have led to differences in the conceptualization of racial/ethnic discrimination as it relates to health behaviors.

Additionally, greater recruitment of women was necessary to accurately assess the aims of this study. The findings of this study were inconsistent with existing literature on gender differences in cigarette craving, possibly due to the low sample of women. Other authors have also concluded that more significant results might be expected in further investigation of gender differences and increased sample sizes (Carter, Lau, Johnson, & Kirkinis, 2017). The present study had lower numbers of women compared to men, which has impact on the power of the results. Future investigations of how gender-related discrimination events influence cigarette craving are recommended.

The novel method of cueing racial/ethnic discrimination in the lab was a limitation of the present study. Although research has not identified accurate ways of priming racial/ethnic discrimination, the use of the writing to induce negative affect brought on by discrimination resulted in a possibly faulty conceptualization of these experiences. Another cue paradigm for racial/ethnic discrimination may lead to a more direct connection between these experiences and cigarette craving. The writing task primed participants to think of racial/ethnic discrimination as a traumatic, distressing event. However, 61% of individuals report day-to-day discriminatory experiences (Kessler, Mickelson, & Williams, 1999). Results in the present study might have differed if participants were asked to describe a “daily” discrimination event or their most recent experience. This finding highlights the necessary examination of the relationship between acute, daily racial/ethnic discrimination and desire to smoke.

In addition, asking participants to choose their own experiences allowed participants to control their emotional responses, possibly contributing to use protective factors. If participants

experienced an extremely distressing racial/ethnic discrimination situation that caused intense negative emotions, they are in control of how those negative emotions are expressed. Consequently, participants might have worked through and processed emotions stemming from that experience, limiting the potential of the development of emotions during the experiment. Participants might have skipped overly distressing components of these experiences or have repressed memories of specific content during recall. Creating an experiment that exposed participants to visual scenes of individuals experiencing racial/ethnic discrimination or providing participants with content depicting racial/ethnic discrimination would control for participant variability in content choice. Future research should explore various types of stimuli appropriate for cueing racial/ethnic discrimination in the lab to uncover its role in cigarette craving for this at risk population.

The sample recruited in this study reported low levels of nicotine dependence, which impacts the conceptualization of their reported craving scores. Low nicotine dependence is an expected trajectory of dependence for ethnic minority smokers (White, Nagin, Replogle, & Stouthamer-Loeber, 2004). At low levels of dependence, or at initial stages of smoking, the sensory rewards of smoking are thought to contribute to positive reinforcement of smoking (Russell, 1971). Over time, repeated doses of nicotine lead to tolerance and withdrawal symptoms, triggering negative reinforcement and chronic smoking behavior (Russell, 1971; Selya, et al., 2015). Thus, smoking cigarettes results in higher positive affect among those reporting low-to-medium nicotine dependence (Selya, et al., 2015). Low nicotine dependence in the sample of the present study questions their mechanism of cigarette use. In addition to negative affect experiences and experiences tied to racial/ethnic and gender identity, future research should focus on the role of positive affect among ethnic minority smokers. Research has

indicated that ethnic minority individuals are more likely to smoke in social settings, associated with positive emotions (Satcher, 1998; Shiffman & Waters, 2004). However, experimental research should be conducted linking cigarette craving to positive affect and the role of social smoking among this population.

5.8. Conclusion

The present study examined the influence of personal recollections of racial/ethnic discrimination on cigarette craving and negative affect in comparison to recollection of academic/job-related failures, for both men and women. Recollections of these events were cued by prompts requiring participants to freely write and reflect on the most distressing experiences of their choice. Significant differences in cigarette craving and negative affect were not found between the two writing tasks. However, cigarette craving significantly increased for participants after completing both writing tasks. Non-significant results were explained with the possibility of confounding variables and limitations in the research design and data recruitment. To the author's knowledge, the present study was the first experiment testing the influence of racial/ethnic discrimination on cigarette craving. The study highlights the importance of using a mixed method design to better understand cigarette craving for ethnic minority smokers. Despite non-significant findings for the main quantitative hypotheses, results from the language processing and qualitative analyses in this study enhanced the conceptualization of discrimination in this underserved population.

Appendix A

Demographics Questionnaire

Please fill out the following questions.

1. Are you 18 years or older?

Yes

No

2. Age _____

3. Are you: Male Female Non-Binary Other

4. Do you identify as Transgender?

Yes

No

5. Have you ever smoked part or all of a cigarette?

Yes

No

6. If one of your best friends offered you a cigarette, would you smoke it?

Definitely yes

Probably yes

Probably not

Definitely not

7. At any time during the next 12 months do you think you will smoke a cigarette?

Definitely yes

Probably yes

Probably not

Definitely not

8. Do you currently smoke cigarettes every day or some days?
9. What is your best estimate of the number of days you smoked part or all of a cigarette during the past 30 days?

1 or 2 days

3 to 5 days

6 to 9 days

10 to 19 days

20 to 29 days

All 30 days

10. On the days that you smoked cigarettes during the past 30 days, how many cigarettes did you smoke per day, on average?

Less than one cigarette per day

1 cigarette per day

2 to 5 cigarettes per day

6 to 15 cigarettes per day (about ½ pack)

16 to 25 cigarettes per day (about 1 pack)

26 to 35 cigarettes per day (about 1 ½ packs)

More than 35 cigarettes per day (about 2 packs or more)

11. Have you smoked at least 100 cigarettes in your lifetime?

Yes

No

12. If you smoked, were the cigarettes you smoked menthol?

_____ Yes

_____ No

13. Are you currently enrolled in a 2-year, 4-year university, or online university)?

_____ Yes

_____ No

14. What is your U.S. generational status?

_____ 1st Generation (You and both of your parents were born in another country)

_____ 2nd Generation (You were born in the U.S. and at least one parent was born in another country)

_____ 3rd Generation (You and both of your parents were born in the U.S.)

_____ 4th or Later Generation (You, both parents, and at least one grandparent were born in the U.S.)

15. Circle the category below that best describes your family's socioeconomic status (SES):

Lower SES: My family's income is not sufficient for basic needs of my family (i.e., rent, food health services, etc.) My family may frequently need assistance from government and non-profit programs

Lower Middle SES: My family's income is barely sufficient for basic needs of my family (i.e., rent, food health services, etc.) My family may frequently need assistance from government and non-profit programs

Middle SES: My family's income is sufficient for the needs of my family. My family does not often need to seek assistance from government or non-profit programs. However, needing more money is sometimes an issue.

Upper Middle SES: My family's income is sufficient for the needs of my family. My family can afford to purchase more than basic needs. Needing more money is not an issue.

Upper SES: My family's income is more than sufficient for the needs of my family. My family can afford much more than basic needs. Needing more money is never an issue.

Appendix B

Multigroup Ethnic Identity Measure

In this country, people come from many different countries and cultures, and there are many different words to describe the different backgrounds or ethnic groups that people come from. Some examples of the names of ethnic groups are Hispanic or Latino, Black or African American, Asian American, Chinese, Filipino, American Indian, Mexican American, Caucasian or White, Italian American, and many others. These questions are about your ethnicity or your ethnic group and how you feel about it or react to it.

Please fill in: In terms of ethnic group, I consider myself to be

Use the numbers below to indicate how much you agree or disagree with each statement.

(4) Strongly agree (3) Agree (2) Disagree (1) Strongly disagree

- ____ 1- I have spent time trying to find out more about my ethnic group, such as its history, traditions, and customs.
- ____ 2- I am active in organizations or social groups that include mostly members of my own ethnic group.
- ____ 3- I have a clear sense of my ethnic background and what it means for me.
- ____ 4- I think a lot about how my life will be affected by my ethnic group membership.
- ____ 5- I am happy that I am a member of the group I belong to.
- ____ 6- I have a strong sense of belonging to my own ethnic group.
- ____ 7- I understand pretty well what my ethnic group membership means to me.
- ____ 8- In order to learn more about my ethnic background, I have often talked to other people about my ethnic group.
- ____ 9- I have a lot of pride in my ethnic group.
- ____ 10- I participate in cultural practices of my own group, such as special food, music, or customs.
- ____ 11- I feel a strong attachment towards my own ethnic group.
- ____ 12- I feel good about my cultural or ethnic background.
- ____ 13- My ethnicity is
- (1) Asian or Asian American, including Chinese, Japanese, and others
 - (2) Black or African American
 - (3) Hispanic or Latino, including Mexican American, Central American, and others
 - (4) White, Caucasian, Anglo, European American; not Hispanic
 - (5) American Indian/Native American
 - (6) Mixed; Parents are from two different groups
 - (7) Other (write in): _____
- 14- My father's ethnicity is ____ (use numbers above)
- 15- My mother's ethnicity is ____ (use numbers above)

Appendix C

Positive and Negative Affect Schedule

This scale consists of a number of words that describe different feelings and emotions. Read each item and then list the number from the scale below next to each word.

Indicate to what extent you feel right now.

0	1	2	3	4
Very Slightly or not at all	A Little	Moderately	Quite a Bit	Extremely
_____ 1. Interested		_____ 11. Irritable		
_____ 2. Distressed		_____ 12. Alert		
_____ 3. Excited		_____ 13. Ashamed		
_____ 4. Upset		_____ 14. Inspired		
_____ 5. Strong		_____ 15. Nervous		
_____ 6. Guilty		_____ 16. Determined		
_____ 7. Scared		_____ 17. Attentive		
_____ 8. Hostile		_____ 18. Jittery		
_____ 9. Enthusiastic		_____ 19. Active		
_____ 10. Proud		_____ 20. Afraid		

Appendix D

Questionnaire of Smoking Urges – Brief

	Strongly Disagree						Strongly Agree	
	1	2	3	4	5	6	7	
1. I have a desire for a cigarette right now.	1	2	3	4	5	6	7	
2. Nothing would be better than smoking a cigarette right now.	1	2	3	4	5	6	7	
3. If it were possible, I probably would smoke right now.	1	2	3	4	5	6	7	
4. I could control things better right now if I could smoke.	1	2	3	4	5	6	7	
5. All I want right now is a cigarette.	1	2	3	4	5	6	7	
6. I have an urge for a cigarette.	1	2	3	4	5	6	7	
7. A cigarette would taste good now.	1	2	3	4	5	6	7	
8. I would do almost anything for a cigarette now.	1	2	3	4	5	6	7	
9. Smoking would make me less depressed.	1	2	3	4	5	6	7	
10. I am going to smoke as soon as possible.	1	2	3	4	5	6	7	

Appendix E

Fagerstrom Test for Nicotine Dependence

1. How soon after waking do you smoke your first cigarette?
 - a. Within 5 minutes
 - b. 5-30 minutes
 - c. 31-60 minutes

2. Do you find it difficult to refrain from smoking in places where it is forbidden? e.g., Church, Library, etc.
 - a. Yes
 - b. No

3. Which cigarette would you hate to give up?
 - a. The first in the morning
 - b. Any other

4. How many cigarettes a day do you smoke?
 - a. 10 or less
 - b. 11-20
 - c. 21-30
 - d. 31 or more

5. Do you smoke more frequently in the morning?
 - a. Yes
 - b. No

6. Do you smoke even if you are sick in bed most of the day?
 - a. Yes
 - b. No

Appendix H

Post-Study Interview

Question 1:

Why did you choose to write about that particular experience?

Question 2:

On one of the instruments, we asked you about some negative emotions you might be experiencing. Can you please explain more about any of these negative emotions?

Question 3:

Can you please describe any bodily reactions (i.e., increased heart rate, sweating, increased muscle tension) that arose for you during the task?

Question 4:

When the experience you wrote about occurred, what did you do at the time to cope with the encounter?

Question 5:

Do you feel that any of your experiences of racial/ethnic discrimination are connected to your gender? If so, please describe in detail.

Appendix J

Referral Information

Emergency and Telephone Counseling and Referral:

UT Austin Telephone Counseling and Referral Service 471-CALL(2255)
Austin/Travis County MHMR Hotline 472-HELP(4357)

Individual Counseling

University of Texas Counseling and Mental Health Center 471-3515
Capital Area Mental Health Center 302-1000
Waterloo Counseling Center 444-9922
Samaritan Counseling Center 451-7337
Austin Men's Center 477-9595
UT Clinical Psychology Clinic 471-3393

Family Therapy

Austin Child Guidance Center 451-2242
Life Works (previously: Child and Family Services) 735-2400

Substance Abuse Counseling

UT Austin Alcohol and other Drugs Counseling Program 471-3515
www.soberaustin.com

Smoking Cessation Resources

Smoke Free - <https://www.smokefree.gov/build-your-quit-plan>
Become An Ex - <http://www.becomeanex.org/why-quit.php>
Nicotine-Anonymous - <http://nicotine-anonymous.org/overview2.html>
Face-to-face Meeting: Highland Park Baptist Church
5206 Balcones Dr., Austin, TX
Mon 7:00 PM; Enter through the back door
Telephone: <http://nicotine-anonymous.org/telephone-meetings.html>
Internet: <http://nicotine-anonymous.org/internet-meetings.html>
Quitters Program - <https://www.cmhc.utexas.edu/quitters.html>
Four-session class on smoking cessation facilitated by a qualified professional. Free for UT students in the group format. Individual counseling is \$10.
Student Services Building, 5th floor
Call 512-471-3515 for dates and times and to sign up
Quitnet - <https://quitnet.meyouhealth.com/#/>

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Vita

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