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A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy Department of Psychology College of Arts and Sciences University of South Florida

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ABSTRACT

The COVID-19 pandemic has illuminated persistent racial differences in access and quality of healthcare resources that result in disproportionately poor health outcomes for Black and African Americans, relative to Whites. Given COVID-19’s influence on racial health disparities broadly, examination is warranted on whether the pandemic has more specifically influenced smoking motivation and, subsequently, tobacco-related health disparities. The goal of this study was to test whether COVID-19 related video content differentially primed smoking motivation (cravings, cessation self-efficacy, and motivation to quit) among Black and White smokers. I used an online research platform to host an experiment with a 2x3 between-subjects factorial design (Race vs. Affective Health Threat Prime). Race included Black or White and Health Threat Prime videos included COVID-19 plus explicit health disparities, COVID-19 alone, or Foodborne Illness as a control. Black (n = 501) and White (n = 511) participants were randomly assigned to one of six groups. Results showed no main effects of Health Threat Prime on cravings or cessation self-efficacy and no interaction effects on any smoking motivation variable. However, there were main effects of Race on all smoking motivation variables. Blacks, relative to Whites, had lower cravings and higher cessation self-efficacy and motivation to quit smoking. Income was a significant moderator of the relationship between health threat prime and motivation to quit smoking. For Whites with higher income, there were no differences in motivation across conditions, but there was variability for Blacks with higher income. The most variability was among participants with lower income, with Blacks showing higher motivation...
than Whites overall. Findings suggest that either the health threat primes were not robust enough to elucidate affect associated with the pandemic or that COVID-19 has not had a robust influence on smoking motivation across Black and White smokers.
Chapter 1: Introduction

In the United States, Blacks, relative to Whites, suffer a myriad of health disparities, likely caused in large part by a history of systemic, institutional, and interpersonal discrimination. Among these disparities are health outcomes associated with tobacco use, particularly smoking of combustible tobacco products (i.e., cigarettes and cigars). The COVID-19 pandemic likely amplifies the effects of discrimination and the consequent health disparities, including those associated with tobacco smoking.

From a biopsychosocial perspective, the pathway through which COVID-19 exacerbates tobacco-related, racial health disparities is clear: increased exposure and duration of stressors among historically marginalized racial minorities. The downstream consequences of systemic, institutional, and interpersonal discrimination differentially influence Blacks’ environments, access, use, and quality of care, and stress, which in turn negatively influence their health and increases their vulnerability to the effects of a catastrophic event (e.g., natural disaster) or a public health crisis (i.e., pandemic). Of particular concern, the circumstances of COVID-19 exacerbate the negative health effects of multiple forms of discrimination for Blacks (relative to Whites), especially Black smokers.

Health disparities refer to the disproportionate burden of disease morbidity and mortality among historically disadvantaged groups (Office of Disease Prevention and Health Promotion, 2014; USDHHS). Health disparities emerge from a series of related events that are the consequences of differences in an individual’s environment and access, use, and quality of care.
Persistent patterns of health disparities exist among Blacks relative to Whites. Blacks are 50% more likely to have hypertension or a stroke, 60% more likely to be diagnosed with diabetes, and more likely to have overweight and obesity status (USDHHS, 2020a, 2020b, 2020c, 2020d). Regarding mortality, Blacks are 20% more likely to die from heart disease, 40% more likely to die from stroke, twice as likely to die from diabetes, 2.8 times more likely to die from asthma, more likely to die from any of the top ten cancers, and they have an infant mortality rate twice that of Whites (Services, 2020a, 2020b; USDHHS, 2020a, 2020b, 2020d). Discrimination, or “any act of an individual or institution that denies equitable treatment to an individual or group because of phenotypic characteristics,” can influence the chain of events that cause or drive health disparities (Carter-Pokras & Baquet, 2002; Clark et al., 1999).

**Conceptual Model of the Biopsychosocial Effects of Discrimination on Health**

This theoretical framework is informed by the biopsychosocial models proposed by Brondolo (2018) and Clark (1999) that describe the influence of discrimination on health outcomes. Although Clark (1999) focused on how discrimination-related stress ultimately contributes to poor immune functioning and poor health outcomes, Brondolo (2018) described how discrimination may limit the cognitive control processes that regulate stress responses and ultimately contribute to engagement in risky health behavior. This framework (Figure 1) draws from both perspectives. It proposes that the policy and practices that resulted from systemic and institutional discrimination towards Blacks have resulted in unequal access to well-resourced neighborhoods, and therefore limited access to social mobility and equitable health care while increasing access to establishments associated with poor health outcomes (e.g., tobacco and alcohol distributors, fast food restaurants) and interactions with the criminal justice system. Broadly, this disparity in socioeconomic stability/privilege leads to more experiences of chronic
stress from the consequences of systemic discrimination with fewer opportunities for healthy coping and limited health care access, use, and quality of care. This chronic stress leads to suppressed immune functioning, which leads to the vulnerability to and progression of disease that contributes to poor health outcomes.

For smoking-related outcomes, these stressors, and stress from everyday experiences of discrimination, may impair cognitive control and increase negative affect and cravings to smoke while decreasing cessation self-efficacy. Smokers may continue to use tobacco to cope with daily stress from the consequences of discrimination or struggle with abstinence following a quit attempt, and given that tobacco smoking also reduces immune function, they may be at greater risk for tobacco-related disease onset and progression.

Figure 1. Theoretical framework demonstrating how COVID-19 further contributes to existing health disparities related to discrimination. Red boxes indicate factors that COVID-19 has exacerbated.
The Amplifying Effects of COVID-19

The COVID-19 pandemic amplifies the unequal influence of discrimination on social determinants of health among Blacks. The existing socioeconomic disparity (i.e., across race and socioeconomic status) leaves Blacks and individuals with low socioeconomic status (SES) at higher risk of disease onset or progression because of their 1) inability to afford health care and prescription medication costs which will impede treatment of current conditions, 2) tendency to delay treatment until emergency intervention which is disastrous in the context of an overburdened medical system, 3) lower likelihood of being able to remote work because of their lower occupational privilege and therefore greater risk of exposure to COVID-19, and 4) lower likelihood of having sick leave, which puts colleagues and community members at greater risk for contracting COVID-19. COVID-19 can exacerbate pre-existing sources of stress including stability of housing given high rates of unemployment and impending risk of eviction for some Americans, and fear associated with police brutality and ongoing protests and riots.

Black smokers who experience elevated stress, anxiety, or depressive symptoms (and reduced cognitive control and cessation self-efficacy) may have even fewer coping resources available in their neighborhoods during stay-at-home mandates, and they may still have access to tobacco products from essential businesses. Given the higher density of tobacco outlets in lower SES neighborhoods, tobacco may seem more readily available and smokers may subsequently continue to smoke cigarettes or increase their use. Lastly, Black smokers, who may be less likely to isolate at home due to their occupational attainment, may be at greater risk for contracting COVID-19 due to the hand-to-mouth motion of smoking, relative to non-smokers or smokers who can isolate.
Discrimination Contributes to Health Disparities

Systemic Discrimination

Systemic discrimination refers to a practice or policy that has a broad influence on the oppression of a group (Ture et al., 1992). The US has a history of discrimination that minimized the extent to which Whites had to interact or share resources with Blacks (Institute of Medicine, 2003). Housing discrimination included practices such as redlining, predatory lending, and residential segregation (Bailey et al., 2017; Glaeser & Vigdor, 2001; Institute of Medicine, 2003; Williams & Collins, 2001). Housing discrimination is of significance to health because of its restriction on the social mobility of Blacks (i.e., education and wealth), while simultaneously maintaining the social mobility of Whites (Charles, 2003; Institute of Medicine, 2003; Williams & Collins, 2001). Research has shown that living in neighborhoods with concentrated poverty limits social mobility relative to neighborhoods with mixed or higher income residents (Chetty et al., 2018) by contributing to less educational achievement among Blacks, which reduces their competitiveness in employment and opportunities to earn higher incomes (Williams & Collins, 2001). A CDC (2013) report concluded that greater income and education increase access to psychosocial support and resources that act as protective factors against health risks. Furthermore, they found that not completing high school was associated with greater risk of early onset of disease and progression, poor self-reported health, and more physically unhealthy and mentally unhealthy days among racial minorities and individuals with less education (Services, 2013). Individuals with lower education and income also have higher rates of preventable hospitalization, diabetes prevalence, workplace injuries, asthma attacks, and unemployment, while also having lower rates of colorectal cancer screening and access to healthy food retailers (Services, 2013).
Several studies and reviews provide support for the biopsychosocial models of the relationship between discrimination and health, which propose that discrimination limits social mobility and decreases access to protective health factors while increasing exposure to health risks. Lower income and urban neighborhoods, which have a higher representation of Blacks due to discrimination, are associated with worse determinants of health and greater odds of death (Laveist, 2003; Steenland et al., 2004). For example, urban and low SES neighborhoods tend to have fewer employment opportunities and lower educational achievement (Ford & Moore, 2013; Williams & Collins, 2001). This concentrated poverty is associated with greater mortality rates (Collins, 1999), tobacco use (National Cancer Institute, 2017), environmental exposure to air pollution (Dominici et al., 2006), hazardous waste (Vrijheid, 2000), extreme heat (Uejio et al., 2011), violence and crime (Ewart & Suchday, 2002), social isolation (Cacioppo & Hawkley, 2003; Wu et al., 2000), and likelihood of living in substandard housing. These factors exacerbate the probability of developing respiratory illnesses, vascular distress, injuries, and poor psychological well-being (Bashir, 2002; Cacioppo & Hawkley, 2003; Vlahov et al., 2007).

Taken together, these differences in environment provides an example of how systemic discrimination can influence access to education and wealth, which ultimately influences racial differences in health outcomes by disproportionately impacting Blacks and exacerbating health disparities.

Neighborhoods with more Blacks and poverty also contend with less access to medical institutions (Geronimus, 2000) that are a result of racially segregated healthcare facilities and the implementation of differential medical practices that historically approved abuse and experimentation among Blacks (Humphrey, 1973; Savitt, 1982), and continue to facilitate inadequate care for Blacks (Institute of Medicine, 2003). Other policies and practices
intentionally limited medical education for Blacks and closed hospitals located in Black neighborhoods (Institute of Medicine, 2003). The closing of these hospitals diminished physical access to care for Blacks, the sense of security associated with trusted facilities, and the number of available employment opportunities (Institute of Medicine, 2003; Smith, 1999). Ultimately, the hospital closures meant that Blacks had less economic opportunity and more barriers to seeking medical care, which contribute to health disparities because of a lower likelihood of seeking preventative care (Martin et al., 2017; Nitardy et al., 2016) and an overreliance on emergency medical or mental health services as the first line of treatment when symptoms are already severe (Office of the US Surgeon General, 2001; Services, 2013). Lastly, impoverished neighborhoods tend to have fewer opportunities for leisure activities that promote physical fitness and provide an avenue for healthy coping (Cacioppo & Hawkley, 2003), which leaves Blacks at a disproportionately higher risk for overweight or obese status (Williams & Collins, 2001).

Although there are other forms of systemic and institutional discrimination perpetuated by entities such as the US government, medical institutions, and universities, they will not be discussed at length for the purpose of this paper. Of note, the following are examples of systemic or institutional discrimination that may influence the perception of institutions among Blacks as well as the perception of Blacks among other racial groups: the US Public Health Service Tuskegee Study of Untreated Syphilis in the Negro Male (Freimuth et al., 2001; Gamble, 1997); Johns Hopkins’ use of Henrietta Lacks’ cells without her family’s permission (Lee et al., 2019); stop and frisk policies (Gelman et al., 2007); racial profiling in law enforcement (Harris, 1999); police brutality (Alang et al., 2017); the cocaine and crack weight ratio disparity and sentencing gap (Palamar et al., 2015); and the disproportionate representation of Blacks in the criminal
justice system (Alexander, 2012). These practices, patterns of behavior, and policies have two consequences. The first is diminished trust and accessibility of institutions among Blacks while also limiting the autonomy and potential socioeconomic attainment of Blacks. In doing so, the consequences of these practices may create a sense of powerlessness and fear that is associated with elevated blood pressure, heart rate, and prolonged vigilance that cause morbidity and mortality (Alang et al., 2017; Clark, 2000; Mays et al., 2007) and contribute to racial health disparities. The second result of these practices is to reinforce the beliefs that drive and justify the discrimination and maintain advantage for others (Bailey et al., 2017).

**Institutional Discrimination**

Institutional discrimination refers to the process by which the power and authority of institutions supports the racist attitudes of individuals and allows them to propagate those beliefs into discriminatory policies and practices of the institution (Franklin et al., 2006). These policies promote advantage for the group in power while limiting access to resources and social mobility to the subjects of discrimination (Franklin et al., 2006). Regarding medical institutions, health care providers in mostly Black neighborhoods tend to have lower qualifications, and the health care facilities are of lower quality (Bach et al., 2004), relative to more affluent or White neighborhoods (White et al., 2012). Of particular concern, research has shown consistent bias in the medical care provided to Blacks and other racial minorities, racial disparities in mental health diagnoses (Office of the US Surgeon General, 2001), and discriminatory beliefs about Blacks that result in substandard care (Blair et al., 2013; Hoffman et al., 2016; Institute of Medicine, 2003; Pallok et al., 2019; Schulman et al., 1999; Services, 2013; Shavers et al., 2012). In an example from pain management, a survey of White medical students and residents found that many of them held inaccurate beliefs about the pain tolerance of Black patients and subsequently
provided inadequate treatment recommendations (Hoffman et al., 2016). Another study assessing racial disparities in breast cancer screening found that Black women were more likely to receive a false negative assessment on their mammograms and less likely to receive care at a specialist facility, relative to Whites (Rauscher et al., 2013). These studies provide evidence of how discrimination limits patient accessibility to and quality of care, and screening and treatment of health conditions, which foster racial health disparities (Bailey et al., 2017).

*Interpersonal Discrimination*

When Blacks can overcome the barriers to seeking health care or concerns of trustworthiness of institutions, they may still have to contend with interpersonal discrimination, or the self-reported differential treatment of Blacks at an individual level of interaction. The historical evidence of systemic and institutional discrimination described earlier is congruent with the data that show Blacks report experiencing more racial discrimination than Whites (Institute of Medicine, 2003; Pascoe & Smart Richman, 2009). Given that perceived discrimination functions as a chronic psychosocial stressor for Blacks (Paradies, 2006; Pearlin et al., 2005; Williams & Mohammed, 2009), it elevates physiological processes such as cardiovascular reactivity, blood pressure (Guyl et al., 2001; Krieger & Sidney, 1996) and the acceleration of cell aging (Chae et al., 2014; Epel et al., 2006). The recurrent nature of discrimination in the everyday lives of Blacks means that they may be more susceptible to the early onset and progression of respiratory illness, cardiovascular disease, diabetes, hypertension, and cancers (Berger & Sarnyai, 2015; Dailey, 2009; Williams et al., 2003). Furthermore, empirical research supports a strong negative relationship between chronic stress or discrimination and immune function (Segerstrom & Miller, 2004), and physical and mental health (Godbout & Glaser, 2006; Kemeny & Schedlowski, 2007; Klonoff et al., 1999; Williams
Discrimination may increase stress exposure (Pascoe & Smart Richman, 2009) and anxiety and depressive symptoms (Banks et al., 2006) while impairing cognitive control (Brondolo et al., 2018). In sum, interpersonal discrimination influences health disparities by promoting the frequency of psychosocial stress and the subsequent physiological stress responses and maladaptive coping responses that accelerate disease morbidity and mortality (Brondolo et al., 2018; Clark et al., 1999; Services, 2013).

**Tobacco Use Mediates the Effect of Discrimination on Health**

*Discrimination Increases or Maintains Tobacco Use*

More frequent experiences of systemic, institutional, and interpersonal discrimination may explain why Blacks report more financial stress and stress from life events than Whites (Williams et al., 1997). Ultimately, this additional psychological burden from chronic stress (Pascoe & Smart Richman, 2009) coupled with limited coping resources and fewer protective health factors may contribute to lower smoking cessation self-efficacy, greater difficulty quitting smoking, and ultimately smoking-related health disparities.

As a consequence of systemic discrimination, Blacks have less socioeconomic attainment and privilege, which is associated with greater use of tobacco (National Cancer Institute, 2017). As a result of systemic and institutional discrimination, Blacks are also more likely (than Whites) to have access to tobacco products because they are overrepresented in impoverished and urban neighborhoods with greater tobacco and alcohol outlet density (Alaniz, 1998; Bailey et al., 2017; Fakunle et al., 2016) and targeted marketing from the tobacco industry (CDC, 2022). In this way, systemic discrimination may increase tobacco use by increasing access to tobacco.

Institutional discrimination contributes to tobacco use and maintenance of use through differential practices in medical health screening and treatment recommendations which
contribute to inadequate care (Bailey et al., 2017), medical mistrust, perceived discrimination, and lower satisfaction with care (LaVeist et al., 2000). Specifically, Blacks are less likely than Whites to receive a recommendation to quit smoking at a routine checkup (USDHHS, 2020b) and are less likely to receive a prescription for evidence-based cessation treatments (Trinidad et al., 2011). The broad influence of discrimination in the lives of Blacks may partially explain why they have greater difficulty quitting smoking (CDC, 2022) and have worse tobacco-related health outcomes than Whites (National Cancer Institute, 2017).

At the individual level, perceived discrimination among Blacks is associated with greater odds of current or lifetime smoking and higher levels of stress (Guthrie et al., 2002; Landrine & Klonoff, 2000), greater nicotine dependence (Kendzor et al., 2014), tobacco use (Purnell et al., 2012), risky health behaviors (Stock et al., 2013), lower self-esteem (Williams, 2006), and greater perceived stress and negative affect (Pascoe & Smart Richman, 2009; Priest et al., 2013).

Given that smokers and Blacks have less socioeconomic privilege than non-smokers and Whites, Black smokers may experience stress from more frequent exposure to racial and class discrimination. In the absence of resources to engage in healthy coping behaviors, they may rely on readily available and heavily marketed tobacco products to reduce their negative affect and stress. Furthermore, their decrease in self-esteem and higher negative affect may function to diminish their confidence in their ability to quit smoking, which may explain differences in cessation between Blacks and Whites. In sum, discrimination reduces access to education, income, healthcare, and effective coping strategies, while increasing frequency of exposure to the discrimination-related stress that causes detrimental physiological stress responses, which may facilitate tobacco use and further contribute to excess morbidity and mortality.
Tobacco Use Contributes to Health Disparities

Following the biopsychosocial model, greater availability and potential awareness of maladaptive coping resources in urban and impoverished neighborhoods, coupled with greater distress (Matheson et al., 2006; Perry et al., 2015), and the absence of healthy leisure activities as a result of concentrated neighborhood poverty, may facilitate tobacco use and create obstacles to smoking cessation.

Tobacco health disparities may be driven by lower cessation success among Blacks, despite more attempts to quit smoking (Levy et al., 2011). Most Blacks smoke menthol cigarettes, which are heavily marketed to Blacks and shown to be more difficult (than non-menthol) to quit smoking among Blacks (Samet et al., 2011). Menthol may contribute to greater difficulty quitting smoking and less perceived respiratory irritation, which may contribute to delays in seeking medical care before disease progression. Smoking has been shown to reduce healing and immune response, which may increase the severity of symptoms of common illness for smokers and serve as a risk factor for the onset or progression of disease or poor treatment effectiveness (Peppone et al., 2011).

COVID-19 Amplifies the Effects of Discrimination

Broad Discrimination Effects

Due to restrictions in social mobility in employment and education, Blacks and low wage workers have more transportation barriers in reaching medical appointments and pharmacies (Bambra et al., 2010; Syed et al., 2013), higher rates of being uninsured and inability to afford medical care (Martinez et al., 2015), and lower likelihoods of having paid sick leave (Lovell, 2004). Additionally, Blacks may have more cancelled or rescheduled medical appointments,
which delay the medical care and access to medications that would improve the prevention and management of their health conditions and reduce health disparities (Syed et al., 2013).

The effects of systemic discrimination have limited the number of accessible medical institutions in Black and low SES neighborhoods, which limits access to testing and presents a barrier to care for individuals with COVID-19 symptoms. In the event that Blacks are able to access medical institutions, they are more likely to have access to older facilities that are poorly supplied and less qualified medical staff, both of which may amplify racial differences in treatment outcomes. Furthermore, Blacks are less likely to be insured and may incur greater financial strain as a result of their treatment, relative to Whites.

Institutional and interpersonal discrimination have contributed to a lack of trust in the medical community, which may discourage seeking preventative medical care or early, less intensive medical treatments. Furthermore, the limited access to healthcare facilities and increased financial strain related to the pandemic may delay receiving the vaccine and treatment of new or pre-existing conditions including COVID-19, and institutional and interpersonal discrimination may limit quality of care received. For example, there are emergent patterns of racial disparities in receipt of COVID-19 vaccines across the U.S., which show that despite Blacks having higher incidence of COVID-19 cases and higher mortality rates relative to Whites, they have to date disproportionately low vaccination rates (Ndugga et al., 2021). For example, in Texas, the broad influence of discrimination is apparent given that Blacks account for 12% of the population, yet 19% of COVID-19 cases and just 7% of vaccinations (Kaiser Family Foundation, 2021a, 2021b).

The circumstances of COVID-19 for Blacks may yield higher levels of stress from 1) financial strain due to underemployment and greater COVID-19 exposure or unemployment, 2)
social isolation, 3) additional social stressors such as fear of police brutality, 4) grieving the loss of community and family members due to COVID-19, 4) hypervigilance to interpersonal discrimination given the relevance of systemic discrimination, 5) unstable housing or risk of eviction, 6) lack of access to COVID-19 testing, and 7) medication and health management in the context of a pandemic. Although some of these conditions likely operated prior to the onset of the pandemic, COVID-19 increases the likelihood that many of these circumstances will co-occur for an indeterminate period with limited psychosocial or cessation resources.

**Tobacco-Specific Discrimination Effects**

COVID-19 may contribute to tobacco-related health disparities by exacerbating the financial, medical, and social inequities between Black and White smokers that are a consequence of systemic and institutional discrimination. Unlike other far-reaching health threats, such as foodborne illness, COVID-19 has had a continued influence on employment, housing, mortality, government intervention (e.g., stay-at-home orders, the Coronavirus Aid, Relief, and Economic Security Act, quarantine requirements), and individual behavior (e.g., wearing a mask, socially distancing). Given that data indicate Blacks bear a greater burden in likelihood of contracting COVID-19 (1.4 times Whites), being hospitalized from COVID-19 (3.7 times Whites) and dying from COVID-19 (2.8 times Whites), it is an even greater threat for those who identify as Black (CDC, 2020). The disproportionate experience of discrimination and its resulting inequities among Blacks may also increase their exposure to stress. This increase in stress, coupled with both greater availability of tobacco retailers in neighborhoods of color and limited coping resources in the context of COVID-19, will likely result in decreases in motivation to quit smoking and increases in cravings to smoke cigarettes. The greater financial (e.g., job loss, eviction concerns), medical (e.g., lower access to testing, delays in care, rationing
or ceasing medications), and social consequences (e.g., loss of loved ones to the virus, social isolation, civil unrest related to police brutality) of COVID-19 for Black smokers will cause greater stress for Blacks, which will increase cravings to smoke and decrease motivation to quit smoking, and ultimately exacerbate tobacco-related morbidity and mortality.

The experience of chronic stress will likely reduce immune function, and elevated negative affect may decrease cessation self-efficacy and increase motivation to smoke. These processes could exacerbate existing tobacco related disparities. Specifically, we will likely see an increase in symptom severity and mortality related to diabetes, cardiovascular disease, and asthma among Blacks. The current study seeks to understand how COVID-19 exacerbates the biopsychosocial effects of discrimination and differentially influences the smoking motivation of Black and White smokers.

**Research Aims and Hypotheses**

There are several study designs that may yield a better understanding of how COVID-19 influences smoking motivation. In the event that researchers were able to acquire smoking-related and psychology-related data prior to the onset of COVID-19, they could take advantage of a longitudinal study design. At least one study, conducted in Pakistan, collected data prior to the onset of COVID-19 and at two later time points (Siddiqi et al., 2020). They found that after COVID-19 onset, approximately 10% of smokers had quit, 70% reduced their consumption, and 20% increased consumption. Siddiqi and colleagues (2020) also found that among continued smokers, motivation to quit smoking increased for roughly 40% and decreased for 20%. Of note, participants who had lower nicotine dependence and more financial strain were more likely to quit and report higher motivation to quit smoking.

Other studies, predominately conducted outside of the U.S., have shown similar effects of COVID-19 on smoking behavior; that is COVID-19 was associated with both motivations to quit
and continue smoking, as well as increases and decreases in tobacco consumption (Bommele et al., 2020; Di Renzo et al., 2020; Klemperer et al., 2020). These studies were conducted between March and May 2020, a timeframe which would fall into the first peak of COVID-19 cases and deaths for many smokers. Among both Dutch smokers and U.S. dual users (i.e., individuals who vape and smoke), fewer participants decreased their smoking (14% and 28%, respectively) while more increased their smoking (19% and 30%, respectively; Bommele et al., 2020; Klemperer et al., 2020). Furthermore, the Dutch study found that higher levels of stress were associated with greater odds of changes in consumption in either direction, indicating that stress likely plays a major role in motivation to continue or quit smoking (Bommele et al., 2020). Among Italian smokers, only 3% quit smoking but no further data were provided regarding relative changes in consumption (Di Renzo et al., 2020). Lastly, among Polish smokers, 40% of participants reported no change in their smoking behavior while 45% reported that they increased their tobacco consumption (Sidor & Rzymski, 2020). The literature suggests that COVID-19 has effects on smoking motivation and behavior in both directions; however, there appears to be a more pronounced effect for increases in smoking or continued use, especially for smokers with high levels of stress (Bommele et al., 2020). Given that Blacks report experiencing more stress than Whites (Williams et al., 1997) and several studies demonstrate that stress and discrimination among Blacks are associated with risky health behavior (Pascoe & Smart Richman, 2009; Williams & Mohammed, 2009), greater nicotine dependence (Kendzor et al., 2014) and tobacco use (Landrine & Klonoff, 2000; Purnell et al., 2012), it is likely that Blacks who experience stress from COVID-19 will show greater motivation to continue smoking, relative to Whites. Together, these studies provide preliminary support for the influence of COVID-19 on smoking
motivation. Although a longitudinal study conducted with Black and White smokers in the U.S. would be ideal for demonstrating similar relationships, we do not have pre-COVID-19 data.

Another potential study would involve analyzing national level data to assess for differences in smoking behavior, perhaps across neighborhood census tracts, between 2019 and 2020 or 2021. Although this methodology would allow for inferences about the relationship between COVID-19 and changes in tobacco consumption across neighborhoods with wealth inequities and differential access to resources, we would not be able to adequately assess changes in smoking motivation, affect, or cravings—the psychological mechanisms underlying change in tobacco use.

Lastly, we could conduct a retrospective study to collect data about participants’ current tobacco use and ask them to recall their tobacco use prior to the onset of COVID-19. The inherent flaw in this design is the reliability of participants’ self-report data from nearly one year ago. Additionally, a retrospective research design would create similar challenges in assessing participants’ cravings, cessation self-efficacy, and motivation to quit smoking prior to COVID-19.

Given the limitations of acquiring pre-COVID-19 smoking and psychology-related data, as well as the limitations of conducting a traditional experiment during the COVID-19 pandemic, the present study used an online experiment to prime affective and cognitive responses associated with COVID-19, as compared to responses to other primes. Through this design, the study examined the differential effects of COVID-19 and the salience of health disparities upon Black versus White smokers.
Experimental Design and Overview

A 2x3 between-subjects factorial design with Factor 1 as Race (Black vs White) and Factor 2 as Health Threat prime (COVID-19 plus explicit racial health disparities vs COVID-19 alone vs general health threat of foodborne outbreak) was used to randomly assign participants to one of six groups. Participants were randomized to watch a short video on COVID-19 plus explicit racial health disparities, COVID-19 alone, or foodborne outbreak. The use of this design allowed for testing the effects of COVID-19-related information on smoking motivation above and beyond the effects of another health threat, as well as the influence of the salience of health disparities information. The survey and experiment were conducted via an online research panel platform, TurkPrime’s Prime Panels.

The experiment was based in an affective priming theory that posits an automatic emotional response is elicited from affect-loaded images. Empirical research supports that the presentation of an emotion-provoking image (or text) is sufficient to automatically induce affect from memories of the stimulus (Fazio et al., 1986). The automatic attitude activation effect suggests that an affective prime will initiate a pre-attentive, involuntary, and pervasive affective response that is congruent with the emotional valence of the stimulus (Bargh et al., 1992; Hermans et al., 1994).

Following the theory, this study used a brief video to prime affect and cognition associated with COVID-19. To test whether COVID-19 produces unique responses above and beyond other, more routine, health threats, the first comparison group instead viewed a matched video on the topic of foodborne illnesses. To quantify whether the salience of racial health disparities differentially influences smoking motivation, participants in a third condition viewed a COVID-19 video with racial health disparities information.
Specific Aim 1

The primary aim of the current study was to test via an affective prime the causal influence of COVID-19 (relative to another health threat) and the salience of health disparities on smoking motivation (i.e., cravings, cessation self-efficacy, motivation to quit smoking) across groups.

Hypothesis 1. Due to the greater salience and stress associated with COVID-19, there would be a main effect of Health Threat such that participants in the COVID-19 priming conditions would report higher cravings to smoking and both lower cessation self-efficacy and motivation to quit smoking than participants in the foodborne illness condition. Furthermore, participants in the COVID-19 plus disparities condition would experience elevated stress related to the salience of racial health disparities, which was hypothesized to increase cravings and decrease cessation self-efficacy and motivation to quit. An alternative hypothesis for a main effect of the affective prime (COVID-19 alone vs foodborne illness) was also considered. That is, the health threat of COVID-19 (particularly because it is a respiratory disease) might increase motivation to quit, as could the financial impact of the disease, as evidenced by lower cravings, and higher cessation self-efficacy and motivation to quit, consistent with the findings of Siddiqi and colleagues (2020). These opposite potential effects are not mutually exclusive, but we hypothesized that the former effect would be prepotent, and thus the net effect would be toward higher cravings and lower self-efficacy and cessation motivation.

Specific Aim 2

To compare Blacks and Whites on smoking motivation.

Hypothesis 2. Given that Blacks experience discrimination more frequently than Whites, and subsequently the detrimental socioeconomic consequences of discrimination, there would be a main effect of Race such that Black smokers would have higher cravings and lower cessation
self-efficacy. Although Blacks having greater difficulty quitting smoking than Whites, they report higher motivation to quit smoking and make more cessation attempts in a given year (Bacio et al., 2014; Kulak et al., 2016; Levy et al., 2011). Thus, I hypothesized that Blacks would show higher motivation to quit smoking than Whites.

Specific Aim 3
To test the differential effect of COVID-19 priming and health disparities between Blacks and Whites.

Hypothesis 3. Due to the more pronounced influence of COVID-19 on the lives of Blacks broadly, there would be an interaction effect between Race and Health Threat prime. That is, Black smokers, relative to Whites, would report greater effects of the COVID-19 prime upon smoking motivation variables. Furthermore, the COVID-19 plus explicit racial health disparities condition should elicit a greater response from Black smokers (relative to COVID-19 alone or foodborne illness) than White smokers given the heightened salience of a proximal health threat.

Exploratory Aims
To test whether the hypothesized main effects or interaction effect are moderated by perceived discrimination, stress, and current health.
Chapter 2: Method

Participants

Participants were 501 Black or African American and 511 White smokers recruited via TurkPrime’s Prime Panels (TurkPrime, 2020) between August 4, 2021 and August 23, 2021. For context, by August 2021, 18 months had passed since the COVID-19 pandemic started, vaccines had been approved for emergency use by the US Food and Drug Administration, and the Delta variant of COVID-19 had been spreading for 2 months. Prime Panels is a collection of online research platforms with multiple participant pools that has demonstrated similar or better representativeness than convenience sampling and other popular online platforms (e.g., Amazon Mechanical Turk; Chandler et al., 2019). The platform screens participants on variables including smoking history and frequency and demographics before sending email invitations to qualified participants. Upon accepting the invitation, participants were directed to a Qualtrics survey link to complete the study. Eligible participants met the following criteria: 1) ≥18 years old; 2) self-identify as either Black (or African American) or White; 3) have a smoking history of at least one year; and 4) smoke cigarettes at least 4 days/week.

A power analysis (G*Power version 3.1.9.2) determined that 1,002 participants would be sufficient to achieve a power of 0.80 to detect a small effect size (f=0.10) for a 2 (Race) X 3 (Health Threat Prime), between-subjects ANOVA with α=.05 (two-tailed; Faul et al., 2007). A modest effect size was used for this calculation to ensure the experiment had adequate power to detect an interaction effect.
Measures

Measures were selected with consideration of the 30-minute limit for TurkPrime surveys.

Baseline Measures

Demographics. The demographic questionnaire (Appendix C) assessed basic information such as participant age and estimates of socioeconomic status. These data were used to provide summary information about participants including mean age, measures of SES, and self-identified race.

Smoking Status. The smoking status questionnaire (Appendix D) assessed participants’ current smoking pattern, smoking history, and nicotine dependence using the Cigarette Dependence Scale (Etter et al., 2003). The 5-item scale (score ranges 0-25) assesses cigarette cravings, continued use despite desire for cessation, and loss of control over use. Previous research has found that the CDS has good internal consistency (Cronbach’s $\alpha \geq 0.84$; Okuyemi et al., 2007). The Fagerström Test of Nicotine Dependence (Heatherton et al., 1991) assessed nicotine dependence. It was used in conjunction with the CDS because it is more frequently in the literature despite showing lower internal consistency and weaker associations with predictors and biochemical markers of smoking (Etter, 2008; Okuyemi et al., 2007). The CDS contains two items from the FTND, therefore, the 4 remaining FTND questions were added.

Perceived Racial Discrimination. The shortened version of the Everyday Discrimination Scale (EDS; Cronbach’s $\alpha \geq 0.77$; Sternthal et al., 2011) is a 5-item questionnaire that evaluates the extent to which individuals experience discrimination in their daily lives (Williams et al., 1997). The EDS (Appendix E) assessed broad experiences of discrimination, their frequency, and what personal characteristics are the “main reason” for the discrimination
(e.g., race, weight, disability). Mean scores on the EDS will be used to assess experiences of discrimination for participants.

**Stress.** The Daily Hassles Scale-Revised is a multidimensional measure of stressors (Holm & Holroyd, 1992). This study used Financial Concerns to assess participants experiences of stress in the last month. The 5-item Likert-scale measure (Appendix F) assesses whether a hassle occurred, and the severity of the hassle for participants. To assess for COVID-19 related stressors such as acute life events and financial problems, two stress domains from Sternthal and colleagues (2011) assessments were added to the baseline measures.

**Dependent Measures**

**Craving.** Participants completed a 3-item urge measure with a 7 point Likert scale (1 = strongly disagree to 7 = strongly agree) post-video (Kozlowski et al., 1996). The three items are 1.) I do want to smoke now; 2.) I crave a cigarette right now; 3.) I have a desire for a cigarette right now. To assess avoidance inclinations towards tobacco use participants were asked to rate their desire to avoid smoking on the same scale. The item is “How much do you want to avoid smoking a cigarette right now?” This item has been adapted from alcohol cue reactivity research (e.g., “How much do you want to avoid consuming this item right now?”; Schlauch et al., 2013)

**Affect.** Participants’ affect was assessed with a modified version of the Positive and Negative Affect Schedule (PANAS; Watson et al., 1988) called the International Positive and Negative Affect Schedule – Short Form (Thompson, 2007). The positive affect items have demonstrated good internal reliability and will include the following: active, alert, attentive, determined, and inspired. The negative affect scale includes the following: afraid, nervous, upset, hostile, and ashamed. As part of the post-task questionnaire, participants were asked to rate their current affect on a 5-point scale from 1 (never) to 5 (always).
Smoking Expectancies and Cessation Self-Efficacy. Participants were asked about their perception of the benefits of smoking after the manipulation. Participants completed select items from the Boredom Reduction and Negative Affect Reduction Scales of the Smoking Consequences Questionnaire – Adult (SCQ-A; Copeland, Brandon, Quin, 1995). Values from the SCQ-A may be used in moderation analyses. Although it would be ideal to administer the entire measure, I selected the two most relevant scales to reduce participant burden. Given the closing or reduced hours of business and public spaces, participants may be experiencing more boredom. Negative affect was assessed given the potential psychological strain from the pandemic and political civil unrest and because Blacks report negative affect reduction as a motivation for smoking (Bronars et al., 2015). For cessation self-efficacy, participants rated their current confidence to quit smoking in the next year with a 5-point Likert scale post-manipulation.

Motivation to Quit. Participants’ broad motivation to quit smoking was assessed with a four-item, 7-point Likert scale (1 = completely disagree, 4 = neither agree nor disagree, 7 = completely agree) measure (Simmons et al., 2010). This measure was administered post-manipulation.

Procedure

Recruitment and Screening

Participants were recruited and screened for study eligibility through Prime Panels. Prior to initiating the study, potential participants were screened for age, race, smoking history (i.e., one year or more) and frequency (i.e., at least 4 days/week) (Appendix A). If eligible, they had the opportunity to review the informed consent. The informed consent form emphasized that participation was voluntary and explained the types of questions participants could expect. If
they choose to participate, they completed the remainder of the questionnaire, created in Qualtrics (Qualtrics, 2020Provo, UT) and hosted by Prime Panels. Figure 2 and Table 1 show an outline of study procedures.

Figure 2. Outlined procedure for study.

Demographic and Baseline Assessment

The baseline assessment included the following questionnaires: Basic Demographics, Tobacco Smoking Status and History, Everyday Discrimination Scale (shortened version), and Daily Hassles Scale-Revised, Economic and Acute Stress Events. Embedded within the baseline questionnaire were two attention checks, for example, “Please select “Satisfied” on the scale: This item is for verification purposes,” is followed by 5 options.

Priming Manipulation

Participants viewed a 2-minute video of selected images about either COVID-19 plus explicit racial health disparities, COVID-19 alone (without racial health disparities), or
foodborne illness. The health threat prime videos included information indicating CDC or WHO warnings for their widespread nature and public health threat, symptoms, and estimated deaths. Videos included images of Black and White individuals. The videos were matched for length and quality and quantity of images. The COVID-19 videos included an estimate of total deaths, individuals experiencing symptoms of the condition, and images meant to induce an emotional response such as morgues, refrigerated trucks for excess death, graves, individuals and families in hospitals, ventilators, and trauma room images. The COVID-19 plus disparities condition included explicit information about racial health disparities. The foodborne illness video included images of spoiled food, and individuals experiencing symptoms of the condition such as nausea, cramps, vomiting and diarrhea.

Post-Video

Upon finishing the video, participants completed the post-session questionnaires including motivation to quit, cravings, affect, and cessation self-efficacy. To assess participants’ attention to the manipulation, they were asked to briefly describe the content of the video. To capture how participants were impacted by COVID-19 without influencing their responses to the experiment, a questionnaire about COVID-19 related experiences was administered following completion of the dependent measures. The questionnaire assessed whether participants or members of their social network contracted COVID-19, their perceived threat of COVID-19, their willingness to receive a vaccination, and whether participants received a vaccination.

Compensation and Debriefing

Upon completion of the study, participants were informed of the actual purpose of the study. Participants were paid $12.50 for their time.
Data Analysis Plan

To assess the presence of outliers and to determine normality among variables, descriptive statistics were calculated for demographic and dependent variables. Differences across conditions and race on baseline variables were assessed with chi-square analyses for categorical variables and t-tests for continuous variables. If there were baseline differences between the experimental groups, Analyses of Covariance (ANCOVA) were conducted to control for the baseline differences.

Table 1

Outline of study procedures

<table>
<thead>
<tr>
<th>Part 1: Prime Panel Screening Questions (Appendix A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part 2: Baseline Questionnaires (20 minutes)</td>
</tr>
<tr>
<td>• Demographic Form (Appendix B)</td>
</tr>
<tr>
<td>• Tobacco Smoking Status and History, Other Smoking or Vaping Status (Appendix C)</td>
</tr>
<tr>
<td>• Experiences of Discrimination Scale-Short Form (Appendix D)</td>
</tr>
<tr>
<td>• Daily Hassles Scale-Revised (Appendix E)</td>
</tr>
<tr>
<td>• Smoking Consequences Questionnaire-Adult (Appendix F)</td>
</tr>
<tr>
<td>• International Positive and Negative Affect Scale – Short Form (Appendix G)</td>
</tr>
<tr>
<td>• Cravings 3-Item Measure (Appendix H)</td>
</tr>
<tr>
<td>• Cessation Self-Efficacy (Appendix I)</td>
</tr>
<tr>
<td>• Motivation to Quit Smoking (Appendix J)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Part 3: Video (2 minutes)</th>
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</thead>
<tbody>
<tr>
<td>• Participants watched one of the videos</td>
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</table>

<table>
<thead>
<tr>
<th>Part 4: Post-Video Questionnaires (3 minutes; Appendix G-J)</th>
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<tbody>
<tr>
<td>• Craving</td>
</tr>
<tr>
<td>• Affect</td>
</tr>
<tr>
<td>• Cessation Self-Efficacy</td>
</tr>
<tr>
<td>• Motivation to Quit</td>
</tr>
<tr>
<td>• Post-Video COVID-19 and Health Questionnaire (Appendix K)</td>
</tr>
</tbody>
</table>

| Part 5: Debriefing and Compensation (2 minutes) |

To assess the main effects and interaction of Race and Health Threat Prime on cravings, cessation self-efficacy, and motivation to quit smoking, I conducted between-subjects, 2x3 factorial Analysis of Variance (ANOVAs). Race includes two levels (Black or White), and Health Threat Prime includes three levels (COVID-19 plus explicit racial health disparities, COVID-19 alone, or foodborne illness) of the experimental design. Paired comparisons using t-
tests were conducted to clarify significant main effects of the Health Threat factor or interactions.

Moderation analyses, using Hayes’ Process Macro, were used to determine whether perceived discrimination, stress, or current perceived health interacted with the health threat prime and race in predicting the outcome measures. Analyses were conducted using IBM SPSS Statistics 27 (IBM Corp., 2021).
Chapter 3: Results

Baseline Characteristics

The original sample included 1,541 adult smokers. The first two attention checks were failed by 160 and 98 participants, respectively. Following the final attention check, 267 participants were excluded for insufficient responses. A chi-square test did not reveal a significant difference ($p = .42$) in drop-out rates between Black and White participants. Lastly, 4 participants were dropped for missing data.

As shown in Table 2, the final analysis sample of 1,012 comprised 501 Black or African American smokers and 511 White smokers. Overall, participants were primarily female (57.7%), married (34.5%), heterosexual (86.3%), non-Hispanic (97%), and reported an average age of 43 years. The majority of the participants obtained at least a high school education (88.2%), and 10.5% reported an annual income of less than $10,000. Participants smoked an average of 12.3 (SD=9.38) cigarettes per day. Over half of participants smoked menthol cigarettes (67.8%). Participants were high on nicotine dependence with a mean score of 4.69 (SD=1.94) as measured by the FTND and 17.78 (SD=3.64) on the CDS-5. Three-quarters of the sample reported ever making a quit attempt, with an average of 4.48 (SD=4.25) quit attempts. A mean score of 3.72 (SD=3.26) on a measure of confidence to quit smoking suggests that participants had low confidence to quit smoking (range 0-12).

Table 2 shows overall differences in demographic variables across Black and White participants. There were notable key baseline differences across race. Regarding demographic
characteristics, Black or African American participants were significantly younger, and had a greater proportion of the following: men, single relationship status, completed high school and 4-year college, employment, and a political affiliation of democrat. White participants had a greater proportion of individuals with an annual income of $90,000+ and a smaller proportion of individuals earning less than $10,000 annually. Commensurate with previous literature and as seen in Table 2, Black participants had a shorter smoking history (Okuyemi et al., 2001; Trinidad et al., 2004), smoked fewer cigarettes per day (Trinidad et al., 2009), reported higher motivation to quit smoking (Office of Disease Prevention and Health Promotion, 2014), and had a greater proportion of smokers who preferred menthol cigarettes (Cox et al., 2011). White participants had higher self-rated addiction, nicotine dependence (significant for FTND and CDS-5), and smoking outcome expectancies for negative affect reduction and boredom reduction.

There were further significant differences between Black and White participants’ experiences of discrimination and COVID-19 (Table 4). Black participants reported more experiences of discrimination that were characterized by receiving poorer service than others ($\chi^2[5] = 25.94, p < .001$), being treated as though they were not smart ($\chi^2[5] = 18.16, p = .003$), feeling as though others were fearful of them ($\chi^2[5] = 34.36, p < .001$), and being harassed or threatened ($\chi^2[5] = 15.11, p = .01$). There was no difference between Black and White participants for being treated with less respect or courtesy than others. As seen in Table 4, Black participants reported plans to get the COVID-19 vaccine sooner than White participants, however there were no differences in self-reported trust of the vaccine, perceived likelihood of contracting COVID-19, or vaccination rates. There was a significant difference in anticipated severity of COVID-19 symptoms, with a greater proportion of Black participants reporting that they believed their symptoms would be very serious. Black participants also reported more
frequently adhering to social distancing guidelines, relative to Whites. A greater proportion of Black participants were tested for COVID-19 and there was no significant difference in positivity rate. Similar to findings in the literature, Blacks reported a higher rate of coronary artery disease (Mozaffarian et al., 2015). Whites reported more use of over-the-counter (OTC) medications, such as Tylenol and Advil.

**Affective Response to Videos**

To assess whether the health threat primes induced affect associated with the video content, a one-way analysis of variance was conducted. There were no statistically significant differences in reported positive affect between the three health threat primes. As expected, there was a statistically significant difference in negative affect between the health threat primes, $F(2,1002) = 11.22, p < .001$. Post-hoc analyses for negative affect, using Tukey’s HSD, showed the COVID-19 plus disparities ($p = .007$, 95% CI: [.26, 1.98]; $M = 7.85$) and COVID-19 alone ($p = <.001$, 95% CI: [.86, 2.61]; $M = 8.47$) videos were significantly different from the foodborne illness video ($M = 6.73$), but not from each other.

**Primary Hypotheses**

*Hypothesis 1A*

I hypothesized that participants in the COVID-19 priming conditions would report higher cravings to smoke and lower cessation self-efficacy and motivation to quit than participants in the foodborne illness condition. To assess the main effects of health threat prime on the dependent variables (i.e., cravings to smoke, cessation self-efficacy, motivation to quit), I conducted analyses of covariance (ANCOVAs) while controlling for age and sex.

Table 5 shows the results of the ANCOVAs and Table 6 shows the estimated marginal means from the ANCOVAs by factor for cravings, cessation self-efficacy, and motivation to quit smoking. Table 7 shows the estimated marginal means by condition. There were no statistically
significant main effects of health threat prime on cravings, cessation self-efficacy, or motivation to quit.

**Hypothesis 1B, 1C**

I hypothesized that participants in the COVID-19 plus disparities condition would experience elevated stress related to the salience of racial health disparities and subsequently show higher cravings and lower cessation self-efficacy and motivation to quit. I also proposed an alternative hypothesis. Specifically, I hypothesized the health threat of COVID-19 (particularly because it is a respiratory disease) might yield higher motivation to quit, as could the financial impact of the disease, as evidenced by lower cravings, and higher cessation self-efficacy and motivation to quit. Contrary to the hypotheses, the results of the ANCOVAs (controlling for age and sex) showed no significant main effects of health threat prime for cravings, cessation self-efficacy, or motivation to quit.

**Hypothesis 2**

Given that Blacks experience discrimination more frequently than Whites, and consequently the detrimental socioeconomic effects of discrimination, I hypothesized there would be a main effect of race such that Black smokers would have higher cravings, and lower cessation self-efficacy, but based on prior literature, higher motivation to quit smoking than Whites. As expected, there were statistically significant main effects of race; however, only one of the relationships was in the hypothesized direction. As seen in Table 5, Black participants reported lower cravings, $F(1,1005) = 5.94, p = .015, \eta^2 = .006$; higher cessation self-efficacy $F(1,1000) = 6.14, p = .013, \eta^2 = .006$; and greater motivation to quit smoking, $F(1,1005) = 15.61, p = <.001, \eta^2 = .015$, compared to White participants.
Table 2

Baseline Demographic Characteristics of Black and White Participants

<table>
<thead>
<tr>
<th></th>
<th>All % or M (SD)</th>
<th>Black (n=501)</th>
<th>White (n=511)</th>
<th>χ² / t</th>
<th>P-value</th>
</tr>
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<tbody>
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<tr>
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<td>61.8</td>
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<td>77.8</td>
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<td>Hours in Home</td>
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<td>17.03 (5.33)</td>
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<td>11.9</td>
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<td>17.6</td>
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Table 3

*Baseline Smoking Characteristics of Black and White participants*

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<th>Smoking-Related</th>
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<th>White (n=511)</th>
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<th>P-value</th>
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<tr>
<td>Years smoking</td>
<td>21.76 (13.59)</td>
<td>19.72 (12.55)</td>
<td>23.78 (14.27)</td>
<td>t = -4.81</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Cigarettes Per Day</td>
<td>12.30 (9.38)</td>
<td>9.52 (6.73)</td>
<td>15.03 (10.73)</td>
<td>t = -9.76</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Smoke Menthol</td>
<td>67.8%</td>
<td>88.4%</td>
<td>47.6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Addiction</td>
<td>77.89 (20.89)</td>
<td>75.72 (21.27)</td>
<td>80.03 (20.31)</td>
<td>t = -3.30</td>
<td>.001</td>
</tr>
<tr>
<td>Ever Quit Attempt</td>
<td>75%</td>
<td>74.5%</td>
<td>75.5%</td>
<td></td>
<td>.703</td>
</tr>
<tr>
<td># of Quit Attempts</td>
<td>4.48 (4.25)</td>
<td>4.72 (4.36)</td>
<td>4.25 (4.14)</td>
<td></td>
<td>.132</td>
</tr>
<tr>
<td>CDS-5</td>
<td>17.78 (3.64)</td>
<td>17.01 (3.45)</td>
<td>18.54 (3.67)</td>
<td>t = -6.81</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>FTND</td>
<td>4.69 (1.94)</td>
<td>4.27 (1.85)</td>
<td>5.10 (1.95)</td>
<td>t = -6.93</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

*Psychosocial*

| Confidence to Quit                          | 3.72 (3.26)  | 4.00 (3.23)  | 3.44 (3.27)   | t = 2.73  | <.001   |
| Trauma                                       | 1.93 (1.94)  | 1.93 (1.87)  | 1.94 (2.01)   |        | .940    |
| SCQ Boredom                                  | 13.28 (4.52) | 12.98 (4.67) | 13.58 (4.35)  | t = -2.09 | .037    |
| SCQ NAR                                      | 42.71 (11.41)| 41.85 (11.78)| 43.54 (10.99) | t = -2.36 | .018    |

*Note.* Self-rated addiction range is 0-100. CDS-5 range is 5-25. FTND range is 1-10. SCQ boredom range is 0-18. SCQ NAR (range 0-54) is the negative affect reduction scale.

Table 4

*Baseline COVID-19 Characteristics between Black and White participants*

<table>
<thead>
<tr>
<th>COVID-19 Variables</th>
<th>All</th>
<th>Black (n=501)</th>
<th>White (n=511)</th>
<th>χ² / t</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td># of people died</td>
<td>1.27 (2.85)</td>
<td>1.07 (2.62)</td>
<td></td>
<td></td>
<td>.257</td>
</tr>
<tr>
<td>Health Status</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.116</td>
</tr>
<tr>
<td>Poor</td>
<td>5.6%</td>
<td>4%</td>
<td>7.2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fair</td>
<td>23.1%</td>
<td>21.5%</td>
<td>24.7%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good</td>
<td>35.2%</td>
<td>36.9%</td>
<td>33.7%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very Good</td>
<td>26.6%</td>
<td>27.5%</td>
<td>25.6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Excellent</td>
<td>9.5%</td>
<td>10.2%</td>
<td>8.8%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diabetes</td>
<td>12.6%</td>
<td>13.6%</td>
<td>11.7%</td>
<td></td>
<td>.381</td>
</tr>
<tr>
<td>Coronary Artery Disease</td>
<td>9.9%</td>
<td>11.8%</td>
<td>8%</td>
<td>χ² = 3.96</td>
<td>.047</td>
</tr>
<tr>
<td>Respiratory Disease</td>
<td>21.6%</td>
<td>20.1%</td>
<td>23.1%</td>
<td></td>
<td>.251</td>
</tr>
<tr>
<td>Autoimmune Disease</td>
<td>8%</td>
<td>6.4%</td>
<td>9.6%</td>
<td></td>
<td>.059</td>
</tr>
<tr>
<td>Take OTC Medicine</td>
<td>42.9%</td>
<td>37.6%</td>
<td>48.1%</td>
<td>χ² = 11.38</td>
<td>.001</td>
</tr>
<tr>
<td>Had COVID-19</td>
<td>17.2%</td>
<td>14.4%</td>
<td>20.2%</td>
<td>χ² = 6.06</td>
<td>.048</td>
</tr>
<tr>
<td>Ever Tested for COVID-19</td>
<td>41.2%</td>
<td>43.2%</td>
<td>39.1%</td>
<td>χ² = 8.53</td>
<td>.014</td>
</tr>
<tr>
<td>Positive COVID-19 Test</td>
<td>12.3%</td>
<td>10.3%</td>
<td>14.4%</td>
<td></td>
<td>.248</td>
</tr>
<tr>
<td>Symptom Severity</td>
<td>n = 50</td>
<td></td>
<td></td>
<td></td>
<td>.064</td>
</tr>
<tr>
<td>Likely to get COVID</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>.096</td>
</tr>
<tr>
<td>Very unlikely</td>
<td>27.1%</td>
<td>28.6%</td>
<td>25.3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Somewhat unlikely</td>
<td>20.4%</td>
<td>17.7%</td>
<td>23.5%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

34
Table 4 (continued)

### Likely to get COVID

<table>
<thead>
<tr>
<th>Likelihood</th>
<th>Neither</th>
<th>Somewhat likely</th>
<th>Very likely</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neither</td>
<td>32.7%</td>
<td>15.9%</td>
<td>3.9%</td>
</tr>
<tr>
<td>Somewhat likely</td>
<td>37.5%</td>
<td>12.5%</td>
<td>3.6%</td>
</tr>
<tr>
<td>Very likely</td>
<td>27.1%</td>
<td>19.9%</td>
<td>4.2%</td>
</tr>
</tbody>
</table>

### Vaccinated

<table>
<thead>
<tr>
<th></th>
<th>Fully</th>
<th>Partially</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fully</td>
<td>42%</td>
<td>8.3%</td>
<td>49.8%</td>
</tr>
<tr>
<td>Partially</td>
<td>43.8%</td>
<td>9.4%</td>
<td>46.8%</td>
</tr>
<tr>
<td>No</td>
<td>40.1%</td>
<td>7.2%</td>
<td>52.6%</td>
</tr>
</tbody>
</table>

### Likely to Want Vaccine

(n=504)

<table>
<thead>
<tr>
<th>Likelihood</th>
<th>Very unlikely</th>
<th>Somewhat unlikely</th>
<th>Neither</th>
<th>Somewhat likely</th>
<th>Very likely</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very unlikely</td>
<td>44.6%</td>
<td>13.7%</td>
<td>14.7%</td>
<td>15.3%</td>
<td>11.7%</td>
</tr>
<tr>
<td>Somewhat unlikely</td>
<td>38.3%</td>
<td>15.3%</td>
<td>16.6%</td>
<td>18.3%</td>
<td>11.5%</td>
</tr>
<tr>
<td>Neither</td>
<td>50.2%</td>
<td>12.3%</td>
<td>13.0%</td>
<td>12.6%</td>
<td>11.9%</td>
</tr>
</tbody>
</table>

### Plan to get vaccine

(n=587)

<table>
<thead>
<tr>
<th></th>
<th>Next week</th>
<th>Next month</th>
<th>Next 2-3 months</th>
<th>Next 4-6 months</th>
<th>&gt; 6 months</th>
<th>Do not plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Next week</td>
<td>9%</td>
<td>17.4%</td>
<td>13.1%</td>
<td>4.6%</td>
<td>6%</td>
<td>49.9%</td>
</tr>
<tr>
<td>Next month</td>
<td>12.1%</td>
<td>20.9%</td>
<td>13.8%</td>
<td>2.8%</td>
<td>6.4%</td>
<td>44%</td>
</tr>
<tr>
<td>Next 2-3 months</td>
<td>6.2%</td>
<td>14.1%</td>
<td>12.5%</td>
<td>6.2%</td>
<td>5.6%</td>
<td>55.4%</td>
</tr>
<tr>
<td>Next 4-6 months</td>
<td>12.2%</td>
<td>14.1%</td>
<td>12.5%</td>
<td>6.2%</td>
<td>5.6%</td>
<td>55.4%</td>
</tr>
<tr>
<td>&gt; 6 months</td>
<td>6%</td>
<td>6.2%</td>
<td>6.2%</td>
<td>5.6%</td>
<td>5.6%</td>
<td>55.4%</td>
</tr>
</tbody>
</table>

### Trust Vaccine

<table>
<thead>
<tr>
<th></th>
<th>Not at all</th>
<th>Mostly do not trust</th>
<th>Somewhat do not</th>
<th>Somewhat trust</th>
<th>Mostly trust</th>
<th>Completely trust</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all</td>
<td>25.1%</td>
<td>7.6%</td>
<td>9.2%</td>
<td>20%</td>
<td>22.4%</td>
<td>15.7%</td>
</tr>
<tr>
<td>Mostly do not trust</td>
<td>22.7%</td>
<td>7.4%</td>
<td>10.0%</td>
<td>22.9%</td>
<td>23.5%</td>
<td>13.5%</td>
</tr>
<tr>
<td>Somewhat do not</td>
<td>27.4%</td>
<td>7.8%</td>
<td>8.4%</td>
<td>17.2%</td>
<td>21.3%</td>
<td>17.8%</td>
</tr>
<tr>
<td>Somewhat trust</td>
<td>8.4%</td>
<td>8.4%</td>
<td>8.4%</td>
<td>17.2%</td>
<td>21.3%</td>
<td>17.8%</td>
</tr>
<tr>
<td>Mostly trust</td>
<td>7.8%</td>
<td>7.8%</td>
<td>8.4%</td>
<td>17.2%</td>
<td>21.3%</td>
<td>17.8%</td>
</tr>
<tr>
<td>Completely trust</td>
<td>27.4%</td>
<td>27.4%</td>
<td>27.4%</td>
<td>27.4%</td>
<td>27.4%</td>
<td>27.4%</td>
</tr>
</tbody>
</table>

### Anticipated COVID Severity

\[ \chi^2 = 17.97 \quad p < .001 \]

<table>
<thead>
<tr>
<th></th>
<th>Not at all</th>
<th>Somewhat serious</th>
<th>Very serious</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all</td>
<td>22.5%</td>
<td>41.7%</td>
<td>35.8%</td>
</tr>
<tr>
<td>Somewhat serious</td>
<td>18.5%</td>
<td>39.6%</td>
<td>41.8%</td>
</tr>
<tr>
<td>Very serious</td>
<td>26.4%</td>
<td>43.6%</td>
<td>29.9%</td>
</tr>
</tbody>
</table>

### Remote Work Option

<table>
<thead>
<tr>
<th></th>
<th>No</th>
<th>Not working</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>36.6%</td>
<td>34.2%</td>
</tr>
<tr>
<td>Not working</td>
<td>37.1%</td>
<td>31.9%</td>
</tr>
</tbody>
</table>

### Required Remote: No

<table>
<thead>
<tr>
<th></th>
<th>75.6%</th>
<th>72.8%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decided to Remote: No</td>
<td>64.8%</td>
<td>61.1%</td>
</tr>
</tbody>
</table>

### Decided to Remote: No

\[ \chi^2 = 4.11 \quad p = 0.043 \]

### Social Distancing

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Almost Never</th>
<th>Sometimes</th>
<th>Fairly Often</th>
<th>Very Often</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>1.5%</td>
<td>3.3%</td>
<td>15%</td>
<td>18.2%</td>
<td>62.1%</td>
</tr>
<tr>
<td>Almost Never</td>
<td>0.6%</td>
<td>2.6%</td>
<td>11.8%</td>
<td>15.1%</td>
<td>69.9%</td>
</tr>
<tr>
<td>Sometimes</td>
<td>2.3%</td>
<td>3.9%</td>
<td>18.2%</td>
<td>21.1%</td>
<td>54.4%</td>
</tr>
</tbody>
</table>
Table 5

2 X 2 Between-Subjects ANCOVAs for the Outcome Variables

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Squares</th>
<th>F</th>
<th>P</th>
<th>Partial Eta Squared</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cravings</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Race (A)</td>
<td>152.02</td>
<td>1</td>
<td>152.02</td>
<td>5.94</td>
<td>.015</td>
<td>.006</td>
</tr>
<tr>
<td>Health Threat Prime</td>
<td>54.30</td>
<td>2</td>
<td>27.15</td>
<td>1.06</td>
<td>.35</td>
<td>.002</td>
</tr>
<tr>
<td>A*B</td>
<td>14.83</td>
<td>2</td>
<td>7.41</td>
<td>.29</td>
<td>.75</td>
<td>.001</td>
</tr>
<tr>
<td>Age</td>
<td>534.11</td>
<td>1</td>
<td>534.11</td>
<td>20.89</td>
<td>&lt;.001</td>
<td>.020</td>
</tr>
<tr>
<td>Sex</td>
<td>38.84</td>
<td>1</td>
<td>38.84</td>
<td>1.52</td>
<td>.22</td>
<td>.002</td>
</tr>
<tr>
<td>Error</td>
<td>25700.72</td>
<td>1005</td>
<td>25.57</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>26471.68</td>
<td>1012</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cessation Self-Efficacy</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Race (A)</td>
<td>64.56</td>
<td>1</td>
<td>64.56</td>
<td>6.14</td>
<td>.013</td>
<td>.006</td>
</tr>
<tr>
<td>Health Threat Prime</td>
<td>23.70</td>
<td>2</td>
<td>11.85</td>
<td>1.13</td>
<td>.32</td>
<td>.002</td>
</tr>
<tr>
<td>A*B</td>
<td>6.94</td>
<td>2</td>
<td>3.47</td>
<td>.330</td>
<td>.72</td>
<td>.001</td>
</tr>
<tr>
<td>Age</td>
<td>259.47</td>
<td>1</td>
<td>259.47</td>
<td>24.70</td>
<td>&lt;.001</td>
<td>.024</td>
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<tr>
<td>Sex</td>
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<td>290.19</td>
<td>27.62</td>
<td>&lt;.001</td>
<td>.027</td>
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<td>Error</td>
<td>10527.33</td>
<td>1002</td>
<td>10.51</td>
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</tr>
<tr>
<td>Total</td>
<td>11218.14</td>
<td>1009</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Motivation to Quit</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Race (A)</td>
<td>775.11</td>
<td>1</td>
<td>775.11</td>
<td>15.61</td>
<td>&lt;.001</td>
<td>.015</td>
</tr>
<tr>
<td>Health Threat Prime</td>
<td>26.22</td>
<td>2</td>
<td>13.11</td>
<td>.26</td>
<td>.77</td>
<td>.001</td>
</tr>
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<td>A*B</td>
<td>141.87</td>
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<td>70.93</td>
<td>1.43</td>
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<td>.003</td>
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<td>65.45</td>
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<td>Sex</td>
<td>27.23</td>
<td>1</td>
<td>27.23</td>
<td>.55</td>
<td>.46</td>
<td>.001</td>
</tr>
<tr>
<td>Error</td>
<td>49906.71</td>
<td>1005</td>
<td>49.66</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>50900.76</td>
<td>1012</td>
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<td></td>
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<td></td>
</tr>
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</table>

*Note. ANCOVAs used age and sex as a covariate. Bold indicates statistically significantly results.*

Table 6

Estimated Marginal Means by Factor from ANCOVAs for Primary Outcomes—M (SE)

<table>
<thead>
<tr>
<th></th>
<th>Race</th>
<th>Health Threat Prime</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Black</td>
<td>White</td>
</tr>
<tr>
<td>Cessation Self-Efficacy</td>
<td>3.98 (.15)</td>
<td>3.47 (.14)</td>
</tr>
<tr>
<td>Motivation to Quit</td>
<td>18.52 (.32)</td>
<td>16.76 (.31)</td>
</tr>
</tbody>
</table>

*Note. ANCOVAs used age and sex as covariates. COVID+ refers to the COVID-19 plus explicit disparities condition. COVID refers to the COVID-19 alone condition. FI refers to the foodborne illness condition. Cravings range is 3-21. Cessation self-efficacy range is 0-12. Motivation to Quit range is 4-28.*
Table 7

Estimated Marginal Means by Condition and Race from ANCOVAs – M (SE)

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Black COVID+</th>
<th>White COVID+</th>
<th>Black COVID</th>
<th>White COVID</th>
<th>Black FI</th>
<th>White FI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cravings</td>
<td>13.77 (.40)</td>
<td>14.27 (.38)</td>
<td>14.04 (.40)</td>
<td>15.14 (.41)</td>
<td>13.83 (.38)</td>
<td>14.58 (.38)</td>
</tr>
<tr>
<td>Cessation Self-Efficacy</td>
<td>4.16 (.26)</td>
<td>3.71 (.24)</td>
<td>4.02 (.26)</td>
<td>3.31 (.26)</td>
<td>3.74 (.25)</td>
<td>3.41 (.25)</td>
</tr>
<tr>
<td>Motivation to Quit</td>
<td>18.95 (.56)</td>
<td>16.23 (.53)</td>
<td>18.69 (.55)</td>
<td>17.02 (.57)</td>
<td>17.92 (.53)</td>
<td>17.01 (.53)</td>
</tr>
</tbody>
</table>

Note. ANCOVAs used age and sex as a covariate. COVID+ refers to the COVID-19 plus explicit disparities condition. COVID refers to the COVID-19 alone condition. FI refers to the foodborne illness condition. Cravings range is 3-21. Cessation self-efficacy range is 0-12. Motivation to Quit range is 4-28.

Hypothesis 3A, 3B

Due to the more pronounced influence of COVID-19 on the lives of Blacks broadly, I hypothesized there would be an interaction effect between Race and Health Threat prime. That is, Black smokers, relative to Whites, would report greater effects of the COVID-19 prime upon smoking motivation variables. Furthermore, I hypothesized that the COVID-19 plus explicit racial health disparities condition would elicit a greater response from Black smokers (relative to COVID-19 alone or foodborne illness) than White smokers given the heightened salience of a proximal health threat. As seen in Table 5, there were no statistically significant interaction effects on cravings, cessation self-efficacy, or motivation to quit.

Exploratory Moderation Analyses

To assess whether perceived discrimination moderated the relationship between race and health threat primes and outcomes measures, I conducted moderation analysis using the Hayes’ PROCESS macro (version 4.0; Hayes, 2022) for SPSS 27 (IBM Corp., 2021). For the analyses conducted using PROCESS, participants’ health threat prime was dummy coded with the COVID-19 alone condition serving as the reference group. Foodborne illness was coded as 1 with COVID-19 alone coded as 0, and COVID-19 plus disparities was coded as 1 with COVID-19 alone coded as 0. Health threat prime served as the predictor variable. Race served as the primary moderator and was dummy coded with White participants as the reference group (Black
The secondary moderators for the models included discrimination, self-reported health, financial hassles, and median split income. The dependent variables were motivation to quit smoking, cessation self-efficacy, and urge to smoke. Foodborne illness (dummy coded) served as a covariate. An interaction term for the dummy coded foodborne illness and race was created and served as a covariate. PROCESS model 3 was used for these analyses with 5,000 bootstrapped estimates, 95% confidence intervals, no centering, probes for interactions when $\alpha \leq .05$, Johnson-Newman output, and conditioning values set to -1 SD, Mean, and +1 SD. If significant, a moderated relationship would indicate that the effect of the health threat prime on smoking motivation (urge to smoke, cessation self-efficacy, and motivation to quit) varied as a function of both race and a secondary moderator.

Regarding experiences of discrimination, a significant, moderated relationship would indicate that the effect of affective prime and/or race varied as a function of participants’ past experiences with discrimination. Past experiences of discrimination were not a significant moderator of the relationship between the health threat prime/race and cravings ($p = .32$), cessation self-efficacy ($p = .44$), or motivation to quit ($p = .99$).

To test whether stress, as measured by financial daily hassles, moderated the relationship between affective prime and the dependent variables, I again used the Hayes’ PROCESS macro to conduct moderation analyses. Stress did not have a significant moderation effect on cravings ($p = .66$), cessation self-efficacy ($p = .19$), or motivation to quit ($p = .47$).

I then tested whether self-rated current health had a significant moderation effect between the independent and dependent variables. Self-reported current health status was not a significant moderator of the relationship between health threat prime and cravings ($p = .08$) and cessation self-efficacy ($p = .19$). However, there was a significant moderating relationship of race and
health status for motivation to quit. Overall, the interaction for health threat prime, race, and health on motivation was statistically significant ($\beta = -.464$; $95\%$ CI = -.899 - -.028). The model accounted for an additional .4% of the variance in motivation to quit and the results are shown in Figure 3 and Appendix L. The impact of the health threat prime varied by participants’ race and self-reported health. For participants who were healthy, regardless of whether they viewed the COVID-19 alone or COVID-19 plus disparities condition, the impact on average motivation did not vary by race. The model was significant at 1 SD below the mean ($p = .009$), indicating, that the effect was only significant for participants with lower self-reported health. For participants with poorer health, the impact of COVID-19 alone did not vary by race. However, among participants with poorer self-reported health, Blacks had higher average motivation to quit smoking than their White counterparts when they viewed the COVID-19 plus disparities prime.

As part of further exploratory analyses, I conducted a series of three-way ANCOVAs (controlling for age and sex) with income, given COVID-19’s disproportionate financial burden on lower income Americans. A median split for income yielded two levels: <$40,000 and $\geq$40,000. Income emerged as a significant moderator for the interaction effect of race and group on motivation to quit smoking, but not on other dependent variables. However, Levene’s test of equality of error variances ($F = 1.96, p = .031$) was significant; that is, the variance across groups was unequal, which invalidates interpretation of the results. A follow up test, the Shapiro-Wilk, was conducted to assess the normality of the data and confirmed that the results could not be meaningfully interpreted because a basic assumption of the ANOVA could not be met.
Figure 3. MTQ is motivation to quit. The error bars indicate standard error. Health and race are significant moderators of the relationship between health threat prime and motivation to quit smoking. From top to bottom, the graphs represent one standard deviation above the mean, the mean, and one standard deviation below the mean for self-reported health status. COVID-19 plus refers to the COVID-19 plus explicit racial health disparities.
Chapter 4: Discussion

Overview

The current study sought to examine the differential effect of the COVID-19 pandemic across race and upon smoking motivation. Specifically, it tested whether COVID-19 related video content differentially primed smoking motivation among Black and White smokers. I found statistically significant differences between Black and White smokers that are commensurate with previous literature. Specifically, regarding smoking characteristics, Black smokers in this study, had been smoking for fewer years, smoked fewer cigarettes per day, tended to smoke menthol cigarettes, as compared to Whites (National Cancer Institute, 2017). Black and White smokers were equivalent on history of cessation attempts, but Black smokers reported more confidence in their ability to quit smoking. Significantly more Whites than Blacks reported that they smoked to reduce boredom or negative affect.

Self-Reported Health and COVID-19 Data

Surprisingly, Black and White participants were similar across a number of health characteristic, including perceived health status and prevalence of chronic conditions such as diabetes, although significantly more Black participants reported having heart disease. National data indicate that approximately 4 times more Whites (compared to Blacks; Hill & Artiga, 2022) have tested positive for COVID-19, but the magnitude of difference (1.4 times) was much smaller in this study. Commensurate with data that reflect higher mortality rates for COVID-19 among Black Americans (Hill & Artiga, 2022), significantly more Black than White participants
believed that, if they contracted COVID-19, their symptoms would be very serious. Lastly, significantly more Black than White participants reported regularly practicing social distancing. These findings support that differences in COVID-19 health outcomes may be less attributable to individual level factors (vaccination, social distancing, pre-existing conditions), and may be more attributable to the effects of systemic and persistent differences in quality and access of healthcare.

**Main Findings**

Contrary to the proposed hypotheses, there were no main effects of health threat prime on cravings, cessation self-efficacy, or motivation to quit smoking. There were main effects of race on cravings, cessation self-efficacy, and motivation to quit smoking. However, those effects were not all in the expected direction. Contrary to the hypotheses, Blacks had had lower cravings and higher cessation self-efficacy, and congruent with the hypotheses, Blacks had higher motivation to quit smoking. I did not find any statistically significant interaction effects. It is possible that the affective prime that was used in this study was simply not effective in inducing memories associated with COVID-19, especially after participants had likely become more accustomed to life in a pandemic. In the context of continuing to live in the COVID-19 pandemic itself, the video I created using images that are available in mainstream media may not have been enough to elucidate a robust emotional response or draw on impactful memories. By virtue of consuming media related to COVID-19 over the previous year, participants may have habituated to the kinds of morbid and gloomy imagery that they viewed in the videos. It is also possible that these results may accurately reflect that COVID-19 had minimal effects upon smoking motivation and behavior. For example, a recent study compared smoking purchasing, daily cigarette consumption, and household restrictions on indoor smoking between 2018 and 2020, and found
no statistically significant changes in daily smoking or limits of tobacco use inside the home (Driezen et al., 2022). Although the study did not describe racial differences, the findings suggest that COVID-19 may not have had a robust influence on smoking behavior.

**Exploratory Findings**

As part of exploratory moderation analyses, self-reported health status was the lone significant and interpretable moderator of the relationship between race and health threat prime and motivation to quit smoking. Among participants with lower self-reported health, Blacks in the COVID-19 plus disparities condition had the most motivation to quit smoking and Whites had the lowest motivation to quit smoking. It is possible that Blacks in this condition, by virtue of perceiving their health as poor and being a marginalized group, saw these disparities as more proximal threats to their overall, already fragile health. Given their high risk for negative COVID-19 related outcomes and their awareness or concern for their poor or worsening health, these participants may have viewed quitting smoking as both necessary and within their control and were subsequently more galvanized to quit. Whites may have been saddened or shocked by racial health disparities, and because more White participants in this study reported smoking for negative affect reduction, they may have experienced more (rather than less) motivation to smoke.

Among participants with average and above average self-rated health, there were no statistically significant differences in motivation to quit smoking as a function of race or health threat prime. These findings suggest that for motivation to quit smoking, the COVID-19 alone condition and the foodborne illness condition were similar to each other for both Black and White participants. Overall for these two conditions, Blacks had higher motivation to quit smoking than Whites. Among participants with average or above average health, motivation to
quit smoking was stable across participants regardless of race. The stability of motivation to quit smoking among participants with better self-reported health, regardless of race, may suggest that perceived good health is protective against concerns for acute health threats. Although these tests were significant, they were the result of a single, post-hoc three-way interaction. Therefore, my proposed explanations are highly speculative and should be considered with caution.

**Explanations for Responses to the Affective Primes**

The current study sought to elucidate how COVID-19 related content, specifically the affect and memories associated with it, may differentially influence smoking motivation between Black and White smokers. The affective health threat primes (i.e., COVID-19 alone and COVID-19 plus disparities) generated more negative affect than the foodborne illness video, but they were indistinguishable from each other. The lack of differences between the COVID-19 primes may be because the explicit health disparities information was not novel or salient to participants. Alternatively, it is possible that the impact of COVID-19 and its associated emotional response is so robust that few topics would amplify its overall effect. It is also unclear how well the manipulations triggered participants’ memories of their own experiences of COVID-19 or how the mention of explicit racial health disparities impacted participants. Future studies seeking to boost the effectiveness of the manipulation may consider 1) asking participants to describe the extent to which the content related to their own life experiences or 2) to describe a specific, personal event that the content made them contemplate.

The two COVID-19 videos did not create distinguishable differences in negative affect among participants; however, they were meaningfully different from the foodborne illness video given that they generated more negative affect. This finding suggests that COVID-19 and its related content, regardless of the mention of other hardships, can induce negative affect. A future
study could consider the inclusion of more salient imagery (e.g., disturbing medical images) that is less likely to be featured in mainstream media. This study used a combination of stock images and images from the mainstream media, both of which participants may have already been habituated to from news coverage of COVID-19. Given participants possible familiarity with the imagery, the potential effects on their smoking motivation may have been muted.

Regarding the factor of race, most of the findings for Black participants were contrary to the proposed hypotheses. Specifically, Black participants reported lower cravings and higher cessation self-efficacy than Whites. As proposed, and consistent with previous literature, they also reported higher motivation to quit smoking (Levy et al., 2011). There is a paucity of cravings literature on racial differences in smoking, but some research suggests that Black smokers have higher cravings than Whites, but only after smoking (Carter et al., 2010; Robinson et al., 2014). Another study assessed cessation self-efficacy and motivation among Black smokers before and after a cessation attempt (Boardman et al., 2005). Boardman and colleagues (2005) found that participants’ cessation self-efficacy and motivation to quit remained relatively unchanged between the pre and posttreatment, even though most participants did not successfully quit smoking. These findings suggest that cessation self-efficacy and motivation to quit may be stable factors for Black smokers, regardless of context. They also may help explain why the current study did not yield differences in cravings, cessation self-efficacy, and motivation to quit across health threat primes. However, it is worth noting that there were no differences in these variables across White participants either. Greater clarity might have been provided if I had measured these variables at baseline, but this was precluded by the time limits of the online research platform.
Lastly, there were no significant interaction effects on smoking motivation. There is the possibility that COVID-19 has made more households vulnerable to financial hardships and barriers to health care (e.g., overcrowded hospitals), regardless of race. Black participants in particular may be more familiar with health disparities at a broader level or based on their lived experiences; therefore, the manipulations may not have been salient enough. Considering Boardman and colleagues’ findings regarding the relative stability of self-reported smoking motivation among Black smokers, future studies may benefit from using variables that are predictive of smoking behavior and less resistant to change (e.g., latency to smoke; motivation to quit over longer periods, Herzog et al., 2015).

Given that COVID-19 has cast a light on downstream consequences of systemic discrimination, it is possible that Black participants were already aware of racial differences in COVID incidence mortality or suspected it, and the videos may have served as validation rather than triggering distressing memories. At the same time, Whites, who reported higher cravings, may have been less familiar with the extent of COVID-19’s influence on health and quality of life.

Limitations

The online research panel that was used for this study has recruited samples that were more representative than other online platforms such as Amazon M-Turk (Chandler et al., 2019). However, with the widespread financial difficulties and work-from-home orders associated with COVID-19, it is possible that this sample was less representative. In the course of recruitment, there was a greater influx of White participants than Black participants, which is consistent with Whites representing a larger share of the population. To reduce potential confounds of timing in recruitment, I requested that recruitment of White participants be reduced so that each racial
group could be recruited at the same speed. Regardless, Black participants took approximately one additional week to recruit. Although the vast majority of participants had been recruited at that point, it could have also had a bearing on the results. By virtue of conducting this experiment exclusively online without any monitoring from research staff, I was not able to exercise the same level of control as would be possible with an in-person experiment. That is, with the online format, I was unable to gauge participants’ levels of engagement nor limit distractions in their environments.

Lastly, given the evolving nature of COVID-19, it is challenging to determine the extent to which participants felt impacted or removed from its consequences. At the outset of this study’s design, COVID-19 was less understood and potentially more emotionally impactful because of the amount of uncertainty regarding transmission, mortality rates, timeline for a vaccine, etc. By the time this study was recruiting participants, the US was already contending with the Delta variant, a vaccine was available, and there was more guidance on how to avoid contracting or spreading COVID-19. It is possible that this study may have been more impactful if recruitment began at the onset of the pandemic, rather than a year into it.

**Conclusion**

The current study suggests that Black smokers, relative to White smokers, may be more resilient to an affective prime that is reflective of their lived experiences. The study attempted to understand how COVID-19 magnifies the effects of systemic discrimination and uniquely influences smoking motivation across race. The affective prime may not have been effective in drawing on memories of COVID-19 that could impact smoking motivation in the moment, or COVID-19 may not have as robust of an impact on smoking motivation as I hypothesized. Regardless, this study recruited a large sample of Black and White smokers during a period of
fluctuation with the pandemic. I found that many of the demographic and smoking behavior characteristics of participants were reflective of the characteristics of Black and White smokers in the US, which suggests that this sample was representative of these subpopulations. The results of this study are inconclusive but present opportunities for future directions with potentially more graphic imagery, integrated autobiographical memory manipulation, and the use of online research platforms that do not present time restrictions. The current study is a broader reflection of some of the inherent challenges in designing and conducting health disparities research that seeks to better understand how role discrimination influences affect and health behavior change.
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Appendix A: Prime Panel Screening Questions

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
<th>Qualified</th>
<th>NOT Qualified</th>
</tr>
</thead>
<tbody>
<tr>
<td>How old are you?</td>
<td>18+</td>
<td>&lt;18</td>
<td></td>
</tr>
<tr>
<td>What race do you most identify with?</td>
<td>Black, African-American, White</td>
<td>Anything else including more than one race</td>
<td></td>
</tr>
<tr>
<td>Do you currently smoke cigarettes?</td>
<td>YES</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>How long have you been smoking cigarettes?</td>
<td>1 year or more</td>
<td>Less than 1 year</td>
<td></td>
</tr>
<tr>
<td>How many days a week do you smoke cigarettes?</td>
<td>4-7</td>
<td>3 or less</td>
<td></td>
</tr>
</tbody>
</table>

Appendix B: Demographic Questionnaire

The following questions are about yourself and your life situation. All answers will be kept confidential.

1. What is your zip code? __________
2. What is your age? __________________
3. What is your biological sex (check one)?
   - Male
   - Female
4. What is your marital status (check one)?
   - Single
   - Married
   - Separated
   - Divorced
   - Widowed
   - Committed relationship & cohabitating
5. Which of the following best represents your sexual orientation (check one)?
   - Homosexual
   - Heterosexual
   - Bisexual
6. With which racial/ethnic category do you identify yourself? (check all that apply)
   - Black or African American
   - White
   - Asian
   - Pacific Islander or Native Hawaiian
   - American Indian or Alaska Native
7. Are you Hispanic/Latino?
8. Were you born in the U.S?
- Yes
- No → How many years have you lived in the U.S.?

9. Please select “Satisfied” on the scale: This item is for verification purposes.
- Very satisfied
- Mostly satisfied
- Satisfied
- Somewhat satisfied
- Not satisfied

10. What is the highest grade level you have completed (check one)?
- Did not graduate high school
- 4-year college degree
- High school graduate
- Some school beyond 4-year degree
- GED
- Professional degree (e.g., MD, JD, PhD)
- Technical school or Associates degree

11. Are you currently employed?
- Yes → Full-time (35+ hours), Part-time (how many employers in average week)
- No → Seeking work, not seeking work, retired, student, disabled

12. Which of the following best describes your political affiliation?
- Democrat
- Independent
- Republican

13. What is your total household income (check one)?
- Under $10,000
- $10,000 - $19,999
- $20,000 - $29,999
- $30,000 - $39,999
- $40,000 - $49,999
- $50,000 - $59,999
- $60,000 - $69,999
- $70,000 - $79,999
- $80,000 - $89,999
- $90,000 and over

14. Including yourself, how many people are in your household? _________________

15. How satisfied are you with your/your family’s financial situation?
- Completely
-
-
- Not at all

16. How difficult is it to meet monthly bill payments (1 = not at all, 5 = extremely)?
□ None at all
□ A little
□ Some
□ A lot
□ Extremely

17. In the last year, which have you done as the result of economic problems to cover daily expenses:
□ sold possessions/cashed in life insurance → how often? Once, twice, 3 times or more
□ postponed seeing a doctor/health professional
□ been unable to purchase prescribed medications
□ borrowed money from friends/relatives
□ applied for government assistance
□ obtained a loan to consolidate or pay off debt
□ moved to cheaper living quarters/in with other people.

18. In the last year, have you experienced any of the following:
□ Life-threatening illness/accident to someone close to you
□ death of someone close
□ involuntary job loss
□ unemployed and seeking work for 3+ months
□ household member unemployed and seeking work for 3+ months
□ moved to worse home/neighborhood
□ robbed/burglarized
□ serious financial problems
□ legal trouble
□ anything else bad happened to you
□ anything else bad happened to someone close to you.

19. In the last year, have you experienced:
□ Problems with exposure to dangerous chemicals on job
□ problems with exposure to air pollution on job
□ problems with exposure to health risks
□ To what extent does your job expose you to risk of injury/accident/illness
□ 1 = not exposed
□ 2 = somewhat exposed
□ 3 = exposed and a sizable/great problem
Appendix C: Tobacco Smoking Status and History

1. In a typical week, how many days do you smoke cigarettes? (check one)
   □ 7 days/week    □ 3 days/week
   □ 6 days/week    □ 2 days/week
   □ 5 days/week    □ 1 days/week
   □ 4 days/week    □ I haven’t smoked in the last week

2. On average, how many cigarettes do you currently smoke per day? ________ cigarettes

3. Do you smoke menthol flavored cigarettes? □ Yes □ No

4. How soon after you wake up do you smoke your first cigarette (check one)?
   □ Within 5 minutes
   □ 6-15 minutes
   □ 16-30 minutes
   □ 31-60 minutes
   □ After 60 minutes

5. I am not reading the questions in this survey. Please select disagree strongly.
   □ Agree Strongly
   □ Agree
   □ Neither agree nor disagree
   □ Disagree
   □ Disagree Strongly

6. Do you smoke more frequently in the first hours after waking than during the rest of the day?
   □ Yes □ No

7. Which cigarette would you hate most to give up?
   □ The first in the morning □ Any other cigarette

8. Do you find it difficult to keep from smoking in places where it is not allowed (e.g., in
   church, at the library, in cinemas, etc.)?
   □ Yes □ No

9. Do you smoke when you are so sick that you are in bed most of the day?
   □ Yes □ No

10. Please rate your addiction to cigarettes on a scale of 0-100 where 0=“I am NOT addicted to
    cigarettes at all, and 100= I am extremely addicted to cigarettes: ________

11. For you, quitting smoking for good would be
    □ Impossible
    □ Very difficult
    □ Fairly difficult
    □ Fairly easy
    □ Very easy
12. After a few hours without smoking, I feel an irresistible urge to smoke
   □ Totally disagree
   □ Somewhat disagree
   □ Neither agree nor disagree
   □ Somewhat agree
   □ Fully agree

13. How many years have you been smoking? ________ Years

14. Have you tried to quit smoking?
   □ Yes  → if yes, how many times have you tried to quit? ________
   □ No

15. What was the longest period of time that you were able to quit smoking (check one)?
   □ Not Applicable
   □ Minutes
   □ Hours
   □ Days
   □ Weeks
   □ Months
   □ Years

16. Are you seriously considering quitting smoking cigarettes within the next six months?
   □ Yes  □ No

17. Are you planning to quit smoking cigarettes in the next 30 days?
   □ Yes  □ No

18. Since February, have you tried to quit smoking AND succeeded in not smoking for at least 24 hours?
   □ Yes  □ No

19. Since February, how many times have you quit smoking for at least 24 hours? (Circle one)
   0  1  2  3  4  5  6  7  8  9 or more
20. If you would try to quit smoking now, how confident are you that you could go for the following lengths of time without smoking? (Circle one for each period of time)

<table>
<thead>
<tr>
<th></th>
<th>No Confidence</th>
<th>A Little Confidence</th>
<th>Mostly Confident</th>
<th>Very Confident</th>
<th>Extremely Confident</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>One Week</strong></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td><strong>One Month</strong></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td><strong>One Year</strong></td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

**Other Smoking or Vaping Status**

1. Do you smoke little cigars (looks like a cigarette, but with a brown wrapper)?

   □ No
   □ Yes
   If yes, are they menthol flavored? □ Yes □ No

2. Do you smoke cigarillos (e.g., Black and Mild, Swisher Sweets)?

   □ No
   □ Yes
   If yes, are they menthol flavored? □ Yes □ No

3. Do you vape or use electronic cigarettes (e-cigarettes)?

   □ No
   □ Yes
   If yes, are they menthol flavored? □ Yes □ No
Appendix D: Experiences of Discrimination Scale (Short Form)

In your day-to-day life how often have any of the following things happened to you?

➔ Indicates follow up question: What do you think is the main reason for these experiences?

1. Your Ancestry or National Origins
2. Your Gender
3. Your Race
4. Your Age
5. Your Religion
6. Your Height
7. Your Weight
8. Some other Aspect of Your Physical Appearance
9. Your Sexual Orientation
10. Your Education or Income Level
11. A physical disability
12. Your shade of skin color

1. You are treated with less courtesy or respect than other people are.
   - Almost everyday ➔
   - At least once a week ➔
   - A few times a month ➔
   - A few times a year ➔
   - Less than once a year ➔
   - Never

2. You receive poorer service than other people at restaurants or stores.
   - Almost everyday ➔
   - At least once a week ➔
   - A few times a month ➔
   - A few times a year ➔
   - Less than once a year ➔
   - Never

3. People act as if they think you are not smart.
   - Almost everyday ➔
   - At least once a week ➔
   - A few times a month ➔
   - A few times a year ➔
   - Less than once a year ➔
   - Never

4. People act as if they are afraid of you.
   - Almost everyday ➔
   - At least once a week ➔
   - A few times a month ➔
• A few times a year →
• Less than once a year →
• Never

5. You are threatened or harassed.
• Almost everyday →
• At least once a week →
• A few times a month →
• A few times a year →
• Less than once a year →
• Never

Appendix E: Daily Hassles Scale-Revised

Hassles are things that annoy or bother you. This questionnaire lists things that can be hassles in your day-to-day life. Please select how much of a hassle each item has been for you in the last ___________ (month).

<table>
<thead>
<tr>
<th>Financial Concerns</th>
<th>Did not occur</th>
<th>Occurred not severe</th>
<th>Occurred somewhat severe</th>
<th>Occurred moderately severe</th>
<th>Occurred very severe</th>
<th>Occurred, extremely severe</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Not enough money for basic necessities</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2. Not enough money for clothing</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3. Not enough money for housing</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4. Not enough money for entertainment and recreation</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5. Concerns about owing money</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6. Not enough money for food</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7. Not enough money for transportation</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>8. Concerns about money for emergencies</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>9. Financial security</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
Appendix F: Smoking Consequences Questionnaire – Adult

1.) When I’m angry, a cigarette can calm me down.

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Completely</td>
<td>1</td>
<td>Neither Likely</td>
<td>2</td>
<td>Unlikely</td>
<td>3</td>
<td>Or Unlikely</td>
<td>4</td>
<td>Likely</td>
</tr>
</tbody>
</table>

2.) Smoking calms me down when I feel nervous.

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Completely</td>
<td>1</td>
<td>Neither Likely</td>
<td>2</td>
<td>Unlikely</td>
<td>3</td>
<td>Or Unlikely</td>
<td>4</td>
<td>Likely</td>
</tr>
</tbody>
</table>

3.) If I have nothing to do, a smoke can help kill time.

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Completely</td>
<td>1</td>
<td>Neither Likely</td>
<td>2</td>
<td>Unlikely</td>
<td>3</td>
<td>Or Unlikely</td>
<td>4</td>
<td>Likely</td>
</tr>
</tbody>
</table>

4.) If I’m tense, a smoke can help me relax.

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Completely</td>
<td>1</td>
<td>Neither Likely</td>
<td>2</td>
<td>Unlikely</td>
<td>3</td>
<td>Or Unlikely</td>
<td>4</td>
<td>Likely</td>
</tr>
</tbody>
</table>

5.) Cigarettes help me deal with anxiety and worry.

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Completely</td>
<td>1</td>
<td>Neither Likely</td>
<td>2</td>
<td>Unlikely</td>
<td>3</td>
<td>Or Unlikely</td>
<td>4</td>
<td>Likely</td>
</tr>
</tbody>
</table>

6.) If I’m feeling nervous, a smoke can help me relax.
7.) If I’m feeling irritable, a smoke can help me relax.

8.) When I’m alone, a cigarette can help me pass time.

Appendix G: Attention Check, International Positive and Negative Affect Scale – Short Form (Post-Prime)

**Attention Check**
In five (5) words or less, please describe the content of the video. __________________

**International Positive and Negative Affect Scale – Short Form (Post-Prime)**

**Instructions:** Thinking about yourself and how you normally feel, to what extent do you generally feel:

<table>
<thead>
<tr>
<th></th>
<th>1 Never</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Upset</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>2. Hostile</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>3. Alert</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>4. Ashamed</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>5. Inspired</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>6. Nervous</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>7. Determined</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>8. Attentive</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>9. Afraid</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>10. Active</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>
Appendix H: Cravings 3-Item Measure (Post-Prime)

Instructions: Please indicate how much you agree or disagree with the following statements.

<table>
<thead>
<tr>
<th></th>
<th>Very Strongly Disagree</th>
<th>Strongly Disagree</th>
<th>Mildly Disagree</th>
<th>Neutral</th>
<th>Mildly Agree</th>
<th>Strongly Agree</th>
<th>Very Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I do want to smoke now</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>2. I crave a cigarette right now</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>3. I have a desire for a cigarette right now</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>4. How much do you want to avoid smoking a cigarette right now?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

Appendix I: Cessation Self-Efficacy (Post-Prime)

11. If you would try to quit smoking now, how confident are you that you could go for the following lengths of time without smoking? (Circle one for each period of time)

<table>
<thead>
<tr>
<th></th>
<th>No Confidence</th>
<th>A Little Confidence</th>
<th>Mostly Confident</th>
<th>Very Confident</th>
<th>Extremely Confident</th>
</tr>
</thead>
<tbody>
<tr>
<td>One Week</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>One Month</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>One Year</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
Appendix J: Motivation to Quit Smoking (Post-Prime)

<table>
<thead>
<tr>
<th></th>
<th>Completely Disagree</th>
<th>Neutral</th>
<th>Completely Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am committed to being smoke-free</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It is important for me to be a non-smoker</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I want to become or stay smoke-free</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am devoted to being smoke-free</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Appendix K: Post-Video COVID-19 and Health Questionnaire

1. (Select one): Since the COVID-19 epidemic began (March 2020), have you been practicing “social distancing”, which is staying about 6 feet away from anyone who is not living in your household?
   a. Never
   b. Almost never
   c. Sometimes
   d. Fairly often
   e. Very often

2. (Multi-select): Have you EVER been exposed to someone with documented or presumed COVID-19 infection (such as co-workers, family members, or others)? Please check all that apply.
   a. Yes, documented COVID-19 case
      i. Have you lost anyone to COVID-19?
   b. Yes, presumed COVID-19 cases
      i. Have you lost anyone to COVID-19?
   c. Not that I know of

3. (Select one): In general, would you say your health is:
   a. Excellent
   b. Very good
   c. Good
   d. Fair
e. Poor

4. (Select one): Do you have heart disease?
   a. No
   b. Yes

5. (Select one): Do you have diabetes?
   a. No
   b. Yes

6. (Select one): Do you have any lung disease or asthma?
   a. No
   b. Yes

7. (Select one): Do you have an autoimmune or immunodeficiency disease?
   a. No
   b. Yes

8. (Select one): Over the past 12 months, did you regularly take Tylenol, Advil, or Aleve at least twice per week?
   a. No
   b. Yes

9. (Select one): Do you think you have already had COVID-19?
   a. No
   b. Yes

10. (Select one): Have you ever had a test for COVID-19?
    a. No, and I had no symptoms  go to Question 11
    b. No, and I had symptoms such as fever or persistent cough  go to Question 11
    c. Yes  go to Question 12

11. (Multi-select): Why were you not tested?
    a. I did not want to be tested
    b. I was unable to access testing
    c. Other, please specify_______

12. (Select one): Did you test positive for COVID-19?
    a. No
    b. Yes
    c. Waiting for results

13. (Select one): How likely do you believe that you are to get COVID-19?
    a. Very unlikely
    b. Somewhat unlikely
    c. Neither unlikely or likely
    d. Somewhat likely
    e. Very likely
14. (Select one): How serious would it be if you got COVID-19?
   a. Not at all serious
   b. Somewhat serious
   c. Very serious

15. When a vaccine for COVID-19 is available to you, how likely are you to take it?
   a. Very unlikely
   b. Somewhat unlikely
   c. Neither unlikely or likely
   d. Somewhat likely
   e. Very likely

16. When do you think you will receive the COVID-19 vaccine?
   a. Within the next week
   b. In the next month
   c. In the next 2-3 months
   d. In the next 4-6 months
   e. More than 6 months

17. How much do you trust the COVID-19 vaccine?
   a. Not at all
   b. Mostly do not trust it
   c. Somewhat do not trust it
   d. Somewhat trust it
   e. Mostly trust it
   f. Completely trust it

18. Thinking about a 24 hour day, how many hours do you estimate you spend in your home?

19. Do you have the option to work remotely?
   a. No
   b. Yes
      i. Did you decide to work remotely?
      ii. Are you required to work remotely?
Appendix L: Full Model of the Significant Moderating Relationship of Race and Health Status for Motivation to Quit

<table>
<thead>
<tr>
<th>Effect</th>
<th>Estimate</th>
<th>SE</th>
<th>LL</th>
<th>UL</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>3.601</td>
<td>.304</td>
<td>3.003</td>
<td>4.198</td>
<td>.000</td>
</tr>
<tr>
<td>COVID-19 Plus Disparities (A)</td>
<td>-.804</td>
<td>.494</td>
<td>-1.774</td>
<td>.166</td>
<td>.104</td>
</tr>
<tr>
<td>Race (B)</td>
<td>.612</td>
<td>.451</td>
<td>-.273</td>
<td>1.498</td>
<td>.175</td>
</tr>
<tr>
<td>Foodborne Illness</td>
<td>-.023</td>
<td>.193</td>
<td>-1.401</td>
<td>.355</td>
<td>.904</td>
</tr>
<tr>
<td>Foodborne Illness X Race</td>
<td>-.159</td>
<td>.269</td>
<td>-1.689</td>
<td>.370</td>
<td>.555</td>
</tr>
<tr>
<td>Health ©</td>
<td>.222</td>
<td>.091</td>
<td>.044</td>
<td>.399</td>
<td>.015</td>
</tr>
<tr>
<td>Interaction 1: A*B</td>
<td>1.746</td>
<td>.748</td>
<td>.278</td>
<td>3.214</td>
<td>.020</td>
</tr>
<tr>
<td>Interaction 2: A*C</td>
<td>.195</td>
<td>.151</td>
<td>-.100</td>
<td>.490</td>
<td>.196</td>
</tr>
<tr>
<td>Interaction 3: B*C</td>
<td>-.082</td>
<td>.131</td>
<td>-.339</td>
<td>.175</td>
<td>.533</td>
</tr>
<tr>
<td>Interaction 4: A<em>B</em>C</td>
<td>-.464</td>
<td>.222</td>
<td>-.899</td>
<td>-.028</td>
<td>.037</td>
</tr>
</tbody>
</table>

R² Change = .42%

Note. CI is confidence interval. LL is lower limit. UL is upper limit. Race is originally the “Black” dummy coded variable. Interaction 1 is COVID-19 Plus x Black. Interaction 2 is COVID-19 Plus x Health. Interaction 3 is Black x Health. Interaction 4 is COVID-19 Plus x Black x Health.