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# Does Stigma Against Smokers Really Motivate Cessation? A Moderated Mediation Model on the Effect of Anti-smoking Campaigns Promoting Smoker-Related Stigma on Cessation Intentions

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DOES STIGMA AGAINST SMOKERS REALLY MOTIVATE CESSATION?  
A MODERATED MEDIATION MODEL ON THE EFFECT OF  
ANTI-SMOKING CAMPAIGNS PROMOTING SMOKER-RELATED STIGMA  
ON CESSATION INTENTIONS

by

Jinyoung Kim

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## ABSTRACT

### DOES STIGMA AGAINST SMOKERS REALLY MOTIVATE CESSATION? A MODERATED MEDIATION MODEL ON THE EFFECT OF ANTI-SMOKING CAMPAIGNS PROMOTING SMOKER-RELATED STIGMA ON CESSATION INTENTIONS

by

Jinyoung Kim

The University of Wisconsin-Milwaukee, 2014  
Under the Supervision of Professor Xiaoxia Cao

Over the past decade, an increasing number of strong tobacco control legislations (e.g., high cigarette taxes and strict ban on smoking in public places) have passed through Congress to reduce the size of smoking population in the United States. As a part of such national efforts, anti-smoking campaigns have been introduced to curb health problems associated with smoking. Recent anti-smoking campaigns often employ *de-normalization* strategies that portray smoker(s) as deviant and stigmatized minorit(ies) and smoking as an abnormal and non-mainstream activity in order to better stimulate cessation. As a result of implementing such stigmatization tactics, prevalence of smoking at a broad population level has constantly declined in recent years. However, such stigmatizing campaign strategies have been less successful in motivating cessation among smokers in lower levels of socioeconomic status (SES) than among those in higher levels of SES. Observation of the gap in cessation rates raises the questions of how and why the effect of stigmatizing campaigns varies depending upon smokers' SES.

To answer these questions, an experiment was conducted to test a moderated mediation model on the effect of the stigmatizing anti-smoking campaigns on cessation intentions. Results showed that the stigmatizing (vs. the control) campaign messages led the socioeconomically disadvantaged smokers (i.e., low-income smokers) to experience the lower levels of shame, which was translated into the less cessation intentions. Such unintended consequence of the decreased shame on inhibiting the willingness to quit occurred among the disadvantaged smokers who also showed the lower levels of self-efficacy in successful cessation of smoking. The overall findings of this thesis suggest that anti-smoking campaigns promoting smoker-related stigma might have produced the boomerang effect of decreasing the cessation intentions among the lower income smokers with less self-efficacy who account for the majority of smoking population in recent years. More importantly, the findings indicate that public health campaigns that stigmatize smokers and smoking behavior need to be reconsidered; otherwise smokers with lower annual income and self-efficacy might be left at a greater risk of harms associated with smoking and even the disparity in cessation rates may continue growing. For these reasons, the results of this thesis call for formative research to help develop a safer anti-smoking PSA to better prompt smokers across various SES to quit smoking.

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To my beloved parents and brother with a special feeling of gratitude.  
Anything I have achieved as of today cannot be possible without your sacrifice,  
encouragement, and endless love. You are the most precious gift of my life.

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## **Chapter 1**

### **Introduction**

Over the past decade, an increasing number of strong tobacco control legislations (e.g., high cigarette taxes and strict ban on smoking in public places) have passed through Congress (Kim & Shanahan, 2003) to reduce the size of smoking population in the United States (Bell, Salmon, Bowers, Bell, & McCullough, 2010). As a part of such national efforts, anti-smoking information campaigns have been introduced to curb health problems associated with smoking (Chaloupka, Straif, & Leon, 2011; Lemstra, Neudork, & Opondo, 2008). Anti-smoking campaigns have played a major role in sensitizing the public about potential health risks of continued smoking (Lavack, 1999). In recent years, anti-smoking campaigns often employ de-normalization strategies – portraying smoker(s) as “deviant and stigmatized minorit(ies)” (Falomir-Pichastor, Mugny, Berent, Pereira, & Krasteva, 2013, p. 193) and smoking as an abnormal and non-mainstream activity in our society (Lavack, 1999) – in order to better stimulate cessation (Bayer & Stuber, 2006). As a result of such campaign tactics, smoking rates at a broad population level has constantly decreased (Kaiserman, 2002). However, when looking closely at the effect of anti-smoking public service announcements (PSA) on smokers in different socioeconomic status (SES), anti-smoking PSAs that promote smoker-related stigma have been less successful among smokers in lower levels of SES than among those in higher SES (Bell et al., 2010; Niederdeppe, Farrelly, Nonnemaker, Davis, & Wagner, 2011). This observation raises the questions of how and why the effect of the stigmatizing tobacco control campaigns on cessation intentions differs by smokers’ SES.

Although anti-smoking campaigns that enforce stigma against smokers appear to play an important role in producing the gap in cessation rates between the higher and lower SES smokers (Bell et al., 2010; Stuber, Galea, & Link, 2008), few studies have directly tested whether and how such disparities are caused by exposure to the campaigns *per se*. Although two studies using cross-sectional survey data (Stuber et al., 2008; Stuber, Galea, & Link, 2009) reported that the lower SES smokers perceived the lower levels of smoker-related stigma and expressed less willingness to quit smoking than did their higher SES counterparts, their findings did not establish causality between exposure to the stigmatizing campaigns and smokers' quitting intentions. Simply put, earlier studies did not examine whether the perception of smoker-related stigma occurred as a result of watching anti-smoking campaigns; nor did they test whether the perceived smoker-related stigma induced by the campaigns conversely led to cessation intentions. Furthermore, these studies did not investigate through what psychological mechanism(s) stigmatizing anti-smoking PSAs motivate the quitting intentions and for which type of smokers the effect of stigmatizing PSAs might be more pronounced. Hence, this thesis aims to fill these gaps in earlier studies.

Based upon previous literature on the effect of smokers' SES on smoking behavior, the influence of stigma-induced negative emotions on smoking cessation, and the impact of self-efficacy on quitting intentions, this thesis proposes a moderated mediation model to delineate the effect of stigmatizing tobacco control campaigns on smokers' cessation intentions (Figure 1). To be specific, the model hypothesizes that exposure to the stigmatizing campaigns will increase smokers' willingness to quit smoking. The predicted effect of the stigmatizing PSA on cessation intentions will be

partly explained by the PSA's ability to increase the perception of smoker-related stigma among smokers. Such increased perception of stigma should, in turn, induce various negative emotions – shame, guilt, anxiety over social image loss, and fear of social exclusion – that consequently motivate cessation intentions. Moreover, the model posits that overall effect of the stigmatizing PSA on the perception of stigma, the stigma-induced negative emotions, and the cessation intentions will be greater among higher SES smokers than among lower SES smokers. Lastly, the model predicts that the effects of the stigmatizing campaign, the perceived smoker-related stigma, and the negative emotions on cessation intentions will be greater among smokers with higher levels of self-efficacy in successful abstinence from smoking than are among those with lower levels of self-efficacy.

The findings of this thesis will contribute to our understanding of the roles of socioeconomic and/or psychological factors in explaining the disparate impact of stigmatization strategies used in public anti-smoking campaigns on smokers' quitting intentions. Moreover, the findings might help explain why national smoking prevention efforts that promote smoker-related stigma ironically widen the gap in cessation rates between higher and lower SES smokers. From a practical viewpoint, the results of this thesis would suggest that the smoking inequalities across SES might be reduced by modifying the current anti-smoking campaign strategies that focus on demeaning smokers and smoking behavior.

## **Chapter 2**

### **Literature Review**

#### **2.1 Smoking, Stigma, and Anti-smoking Campaigns**

Anti-smoking campaigns have used various message design strategies, such as guilt induction (Brennan & Binney, 2008; Vangelisti, Daly, & Rudnick, 1991) and fear appeals (Smith & Stutts, 2003; Soames, 1988; Strahan, White, Fong, Fabrigar, Zanna, & Cameron, 2002; White, Hill, Siahpush, & Bobevski, 2003), to maximize smokers' motivation to quit smoking (Thompson, Barnett, & Pearce, 2009). Guilt induction tactics attempt to compel smokers to feel a sense of guilty conscience for causing non-smokers physical harms through secondhand smoke (Brennan & Binney, 2008). Fear appeals are employed to arouse dreadful feelings about potential health risks from continued smoking so that smokers are better motivated to quit the risky behavior (Thompson et al., 2009). Earlier researchers have examined the effectiveness of these campaign strategies and found that guilt- or fear-arousal messages were effective in increasing serious cessation intentions (Chapman, 1999; Hu, Sung, & Keeler, 1995; White et al., 2003). However, in recent years, many anti-tobacco campaigns have adopted a newer and presumably more effective strategy that endorse stigmatization of smokers by negatively labeling smoking behavior and suggesting that non-smokers should be distanced from smokers to avoid hearth-related harms from second-hand smoke (Bayer & Stuber, 2006; Bell et al., 2010; Ritchie, Amos, & Martin, 2010; Stuber et al., 2009; Vallone et al., 2010).

Stigma refers to “an attribute that extensively discredits an individual, reducing him or her from a whole and usual person to a tainted, discounted one” (Goffman, 1964, p. 3.; Major & O'Brien, 2005). In other words, stigma indicates an extreme disapproval

of a person or group who “possess (or are believed to possess) some attributes or characteristics that convey social identities that are devalued in particular social contexts” (Crocker, Major, & Steele, 1998, p. 505). Therefore, stigmatized individuals, who are considered as having certain attributes and/or perform certain behaviors (e.g., smoking) that characterize them as different, often experience negative treatment and public discrimination in the eyes of other non-stigmatized individuals (e.g., non-smokers; Jones, Farina, Hastorf, & French, 1984; Major & O’Brien, 2005). These stigmatizing labels thus form the basis of social avoidance and isolation of the stigmatized people (Leary & Schreindorfer, 1998; Major & Eccleston, 2004).

Of particular relevance to smoking behavior, smoker-related stigma refers to collective demeaning attitudes toward smokers that mark them as abnormal or disgraceful due to their smoking behavior (Cataldo, Salughter, Jahan, Pongquan, & Hwang, 2011; Heijinders & Van Der Meij, 2006). Anti-smoking PSAs presumably play a significant role in producing negative social self-images of smokers by portraying them as “dirty, inconsiderate, and weak-willed” and labeling them as social outcasts and pariahs (Farrimond & Joffe, 2006; Goldstein, 1991; Graham, 2012, p. 86). Moreover, majority of recent anti-smoking PSAs began to portray smoking as a contaminating behavior that threatens normal and healthy lives of non-smokers (Graham, 2012; Petersen & Lupton, 1996; Ritchie et al., 2010; Vallone et al., 2010). Therefore, researchers suggested that social stigma against smokers may give rise to various negative emotions among smokers (Else-Quest, LoConte, Schiller, & Hyde, 2009; Greaves, Oliffe, Ponc, Kelly, & Bottorff, 2010; Pachankis, 2007) and result in limited social interactions between smokers and their non-smoking acquaintances (Cataldo, Jahan, & Pongquan, 2012). However,

previous research mainly focuses on examining the impact of general anti-smoking social norms or atmosphere on cessation intentions, whereas little is known about the direct effect of anti-smoking campaigns that stigmatize smokers on the quitting intentions.

## **2.2 Effectiveness of the Stigmatizing Anti-smoking Campaigns Varied by Smoker's SES**

Given a steady decrease in smoking rates among American adults (Centers for Disease and Prevention (CDC), 2014), the stigmatizing anti-smoking campaigns seems to be effective in prompting more smokers to quit smoking. However, it is still too early to conclude that such campaigns have no adverse effects (Waseem, 2013). In particular, when it comes to the growing disparities in cessation rates between smokers in higher and lower SES (CDC, 2009; Niederdeppe et al., 2011), tobacco control campaigns that promote smoker-related stigma might have contributed to decrease cessation intentions among the socioeconomically disadvantaged smokers (Bell et al., 2010). Among the possible explanations for the observed unequal impact of anti-smoking campaigns across smokers of different SES is that smokers of various SES respond differently to the stigmatizing campaign messages (Branscombe & Ellemers, 1998; Crocker et al., 1998; Schmitt & Branscombe, 2002). Indeed, earlier research has shown that smokers with higher levels of education and income were more inclined to perceive smoking-related stigma than their counterparts in lower education and income status (Hammond, Fong, McNeill, Borland, & Cummings, 2006; Sorenson et al., 2002; Stuber et al., 2008). Furthermore, the perception of smoker-related stigma was found to be positively associated with serious intentions to quit (Kim & Shanahan, 2003; Stuber et al., 2009).

Taken together, these findings suggest that the effect of smoker-related stigma promoted by anti-smoking PSAs on cessation intentions might be dependent on smokers' SES.

Why, then, do higher and lower SES smokers tend to respond differently to the same anti-smoking campaign messages that promote stigma against themselves? To answer this question, qualitative researchers have examined "cultures of resistance" against smoker-related stigma within lower SES community (Thompson, Pearce, & Barnett, 2007, p. 509) and prevalence of anti-smoking social norms among higher SES smokers (Greaves et al., 2010). Its findings shed light on the observed relationship between smokers' SES and the perception of stigma surrounding their smoking behavior (Bell et al., 2010; Graham, 2012; Stuber et al., 2009; Thompson et al., 2009).

To be more specific, smoking has been regarded as a "class-related disadvantage" (Graham, 2012, p. 91) because people who smoke are often presumed to have lower levels of education, income, and unstable employment condition (Chapman & Freeman, 2008). In fact, early initiation of smoking and prolonged heavy tobacco use is still common phenomenon among lower SES population (Thompson et al., 2009) due to their life-long disadvantaged backgrounds, such as deprived childhood surroundings, early dropout from school, and consequent poor adulthood circumstances (Graham, 2012). Hence, for lower SES smokers, tobacco use is considered as one of the cultural norms (Thompson et al., 2007) that they have perpetuated in life pathways (Graham, 2012).

Against such disadvantaged life backgrounds, lower SES smokers tend to "strengthen their ties within the stigmatized group in order to obtain a sense of belonging, acceptance, and social support" from other members of the community (Falomir-Pichastor et al., 2013, p. 193) when their social self-images and identities are threatened



by anti-smoking social norms (Crocker et al., 1998; Ellemers, 1993). Thus, smokers who belong to the community where cigarette consumption is normalized and even encouraged (Thompson et al., 2007, p. 510) are less likely to consider smoking as an undesirable or stigmatized behavior that should be abandoned (Thompson et al., 2009). Indeed, lower SES smokers are even found to be discouraged from cessation by their peers in the community (Sorenson et al., 2002).

Moreover, lower SES smokers tend to feel distant from non-smokers and ignore the prevalent social norms of cessation (Stuber et al., 2009; Thompson et al., 2007). Such psychological distance from the prevalent perception of anti-smoking stigma and increase in identification with other lower SES smokers have helped reduce depression (Munford, 1994) and anxiety (Frable, Pratt & Hoey, 1998) among lower SES smokers, and even boosted their self-esteem (Grossman, Wirt, & Davids, 1985; Branscombe & Ellemers, 1999). For smokers in lower SES, smoking is not at all perceived as a shameful action (Frohlich, Potvin, Chabot, & Corin, 2002; Stead, MacAskill, MacKintosh, Reece, & Eadie, 2001), which denotes potential immunity to the impact of anti-smoking PSAs that encourage cessation through explicit stigmatization of smokers (Stuber et al., 2008, 2009). More importantly, such defensive perception and attitudes against the stigmatizing campaigns might explain the growing inequalities in cessation rates between higher and lower SES smokers despite the nationwide efforts to control tobacco use.

In contrast, smokers with higher SES tend to feel greater pressure to follow the anti-smoking mainstream social norms in order to maintain their positive social self-image as a 'clean' and 'healthy' citizen (Thompson et al., 2007). They also receive positive peer support for quitting smoking within their community (Sorenson et al.,

2002). According to the social self-preservation theory (Dickerson & Kemeny, 2004), people in higher social status are inclined to actively manage their behaviors to “maintain social inclusion and acceptance ... within their social group” (Kemeny, Gruenewald, & Dickerson, 2004, p. 154) when their social identity is compromised (Baumeister & Leary, 1995; Gilbert, 1997). They also tend to “(psychologically) distance themselves from the stigmatized in-group (e.g., smokers) by moving toward a more valued group (e.g., non-smokers)” (Falomir-Pichastor et al, 2013, p. 193). Such distancing efforts can result in behavioral change (e.g., cessation of smoking; Unger, Pardee, & Shafer, 2000). For this reason, smoking prevention campaigns that portray smokers as social deviants (Brandt, 1998) may be more effective in increasing cessation intentions for smokers in higher SES than those who belong to lower social status.

In sum, current literature suggests that smokers in higher SES are more sensitive than their lower SES counterparts to smoker-related stigma. This is because the former tend to care more about their social self-images and thus are more negatively affected by the smoker-related stigma than are the latter (Goffman, 1963; Sorenson et al., 2002; Stuber et al., 2008; Thompson et al., 2007). Consequently, higher SES smokers are more likely than their lower SES counterparts to quit smoking in order to maintain their positive social images in accordance with their social standings. These observed disparate reactions of higher and lower SES smokers to smoker-related stigma imply that the influence of anti-smoking PSAs that stigmatize smokers may differ by smokers' SES, such that exposure to the stigmatizing PSA will lead higher SES smokers, but not lower SES smokers, to perceive greater smoking-related stigma. The heightened perception of stigma among higher SES smokers may then translate into greater quitting intentions.

### **2.3 The Mediating Roles of Negative Emotions**

The differential effect of the stigmatizing tobacco control PSAs on cessation intentions between higher and lower SES smokers might be partly explained by negative emotions that are induced by the smoker-related stigma. To be specific, the smoker-related stigma reinforced by anti-tobacco campaigns may cause “stigma-based psychological harm(s)” to smokers (Greaves et al., 2010, p. 522). Indeed, earlier research has found that smoker-related stigma gave rise to negative psychological experiences among smokers, including feeling shame (Chapple, Ziebland, & McPherson, 2004; Fortenberry et al., 2002; Kemeny et al., 2004), guilt (Greaves et al., 2010; Halding, Hegghal, & Wahl, 2011), anxiety over social self-image loss (Crocker & Quinn, 2000; Major & O’Brien, 2005; Pachankis, 2007; Sorenson et al., 2002), and fear of social exclusion (Fife & Wright, 2000; Greaves et al., 2010; Hammond et al., 2006; Kim & Shanahan, 2003; Noelle-Neumann, 1991; Stead et al., 2001). Experiences of such negative emotions in turn contributed to an increase in cessation intentions (Pachankis, 2007; Siahpush, McNeill, Borland, & Fong, 2006) and termination of smoking behavior (Chapple et al., 2004; Hammond et al., 2006).

People whose self-image and identities are threatened may experience shame (Kemeny et al., 2004; Harder & Lewis, 1987). Shame is a “self-conscious negative emotion about oneself” (Else-Quest et al., 2009, p. 949; Dearing, Stuewig, & Tangney, 2005) that motivates one to hide or escape as a result of one’s wrongdoing and transgression from one’s own positive ideals of the self (e.g., keeping one’s creed by restraining oneself from smoking cigarettes; Lindsay-Hartz, 1984; Lutwak & Ferrari,

1996; Tangney & Dearing, 2004). Humans have innate needs to maintain their own positive self-image and identity (Dickerson & Kemeny, 2004). Under circumstances where the self-image is significantly harmed through violation of one's positive ideals (e.g., being a healthy person who do not smoke; Lindsay-Hartz, 1984), therefore, people are motivated to correct one's delinquent behavior in order to live up to their positive ideals (Fedewa, Burns, & Gomez, 2005; Gilbert, 1997). Extending the logic to the context of this thesis suggests that smokers who feel shame for their smoking behavior (Kim & Shanahan, 2003) – due to the heightened perception of smoker-related stigma as suggested in anti-smoking PSAs – may try to restore their damaged self-image and follow one's creed by giving up smoking behavior (Baumeister & Leary, 1995; Siahpush et al., 2006; Sorenson et al., 2002).

In addition, stigmatization of smokers may also elicit guilt among smokers (Else-Quest et al., 2009). Guilt is a negative affective state that is elicited by the perceived strong accountability for one's wrongdoing that violates his/her social standards (e.g., anti-smoking norms in our society; Janoff-Bulman, 1982; Stein, 1968). Given that people understand themselves through others' positive or negative reactions to them (see more the Looking-Glass Model in Crocker & Quinn, 2000), smokers who perceive themselves as violator(s) of the recommended social norms (e.g., smoking cessation) and thus receive negative moral (or social) evaluation from others are likely to experience guilt on their delinquent behavior (e.g., smoking). For this reason, the negative social evaluation of smokers that is reinforced by the stigmatizing anti-smoking campaigns might invoke guilty feeling in smokers' minds about their smoking behavior and motivate them to give up the delinquent behavior (Greaves et al., 2010). Indeed, the guilty feeling for continued

smoking was found to be positively related to smokers' intentions to actively seek help to quit smoking (Halding et al., 2011). Moreover, guilt experienced by ex-smokers was found to be associated with regret for not having quit smoking earlier than they actually did (Chapple et al., 2004).

When stigmatized individuals are denied social acceptance due to their deviant behaviors, they also tend to become “socially anxious” about losing their social self-images (Pachankis, 2007, p. 334; Link & Phelan, 2001; Scheff, 1966) – defined as feeling dreadful about losing one's highly valued public images that had been established with great care (David, 2008). Anxiety over the loss of social self-image occurs when the stigmatized individuals perceive negative public sentiment toward themselves imposed by social stigma that damages their social images (Major & O'Brien, 2005). When one's social self-image or identity is compromised due to stigmatization, an active process of remedying the tainted self-image is initiated (Dickerson & Kemeny, 2004). Hence, it stands to reason that smokers may become anxious about losing one's public image when experiencing the strong anti-smoking atmosphere (Kemeny et al., 2004; Kim & Shanahan, 2003; Stuber et al., 2009) and thus they are likely to be motivated to quit smoking (Gilbert, 1997). In line with this rationale, smoker-related stigma established by tobacco control campaigns might lead to the higher levels of anxiety over social self-image loss among smokers and results in greater intentions to quit smoking (Sorenson et al., 2002).

Lastly, given that the stigmatizing tobacco control campaigns help create anti-smoking social atmosphere as well as smoker-related discrimination (Bell et al., 2010), smokers may become fearful about social exclusion due to their smoking behavior

(Greaves et al., 2010). Fear of social exclusion refers to a negative emotion resulting from threats to one's social network and interaction with others (Cannon, 1932). Such fearful feeling occurs when stigmatized people are at a risk of being isolated from their community because of their resistance to follow any prevalent social norms (Baumeister & Leary, 1995). Driven by such fear of social exclusion, the stigmatized individuals tend to express "fearful compliance" with the desirable behavior as it is performed by majority of others (Gilbert, 1997, p. 125). Because smokers tend to be denied whole social acceptance due to their 'deviant' smoking behavior and smoker-related stigma established by tobacco control PSAs (Schmitt & Branscombe, 2002), they may experience fear of social exclusion and be motivated to comply with anti-smoking social norms (Frable et al., 1998; Gallo & Matthews, 2003).

Although no studies, to my best knowledge, have directly tested to what extent the aforementioned four types of negative emotions (i.e., shame, guilt, anxiety over social image loss, fear of social exclusion) – that are induced by smoker-related stigma highlighted in stigmatizing anti-smoking PSAs – explain the disparate effects of the PSAs on cessation intentions among smokers with various levels of SES, current literature suggests the potential of these negative emotional reactions to explain the different cessation rates between higher and lower SES smokers. Hence, this thesis tests whether these negative emotions aroused by the smoker-related stigma may partly account for the causal relationship between perception of smoker-related stigma and willingness to quit smoking.

## **2.4 The Moderating Role of Perceived Self-Efficacy**

Although the negative emotions (i.e., guilt, shame, anxiety over social image loss, fear of social exclusion) could motivate smokers to stop smoking, the effect of such emotions (aroused by the stigmatizing campaign messages) on cessation intentions might also vary by individual self-efficacy in quitting smoking. As theorized in the integrative model of behavior prediction (IM, Fishbein, 2000), people's intentions to engage in a recommended behavior (e.g., cessation of smoking tobacco) are influenced by their perceived self-efficacy in overcoming difficulties to engage in the desirable behavior.

In the context of smoking cessation, self-efficacy refers to an individual's self-belief or confidence that s/he has enough skills and resources to quit smoking even when facing situational or environmental difficulties. The more one believes that s/he has the necessary skills and support from others to quit smoking (e.g., self-control over relapse of smoking, emotional support for cessation from families and friends, and medical or psychological treatment for quitting smoking) in the face of difficulties (e.g., temptation to resume smoking), the more likely s/he attempts to quit (Siahpush et al., 2006).

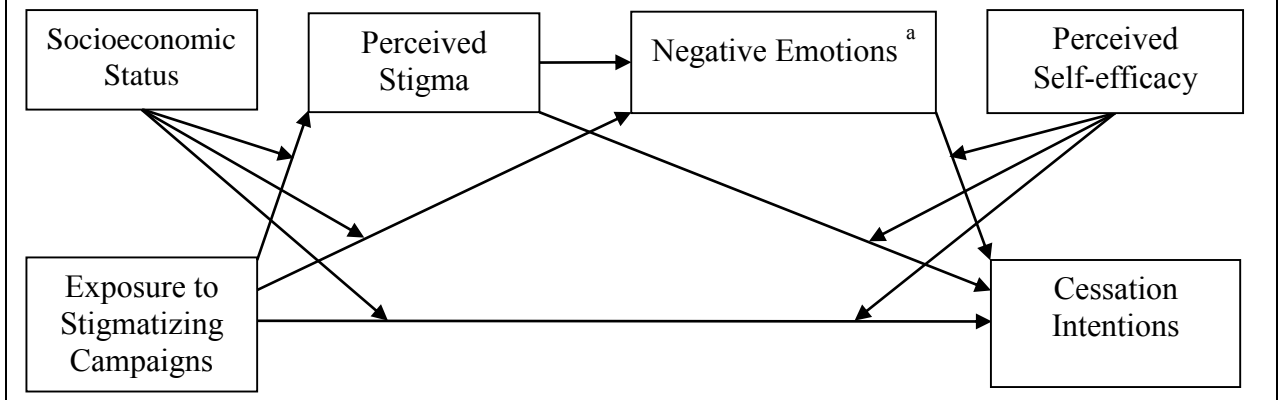
Different from the original IM that treats the perceived self-efficacy as a causal predictor for behavior change, however, this thesis considers the variable as a moderator that may affect the extent to which the stigmatizing PSAs motivate smokers' cessation intentions. More specifically, anti-smoking campaigns that promote smoker-related stigma are expected to have greater positive direct and/or indirect effects on cessation intentions among smokers with higher levels of self-efficacy than among those with lower levels of self-efficacy.

## **2.5 A Moderated Mediation Model on the Effect of Anti-Smoking Campaign Promoting Smoker-related Stigma on Cessation Intentions**

Drawing on the literature reviewed thus far, this thesis proposes a moderated mediation model to explain the disparate effect of anti-smoking PSAs that promote smoker-related stigma on cessation intentions among smokers with various levels of SES and self-efficacy (see Figure 1 for the details of the moderated mediation model). To be specific, the model suggests that exposure to the stigmatizing PSAs increases smokers' cessation intentions. The expected effect of the stigmatizing PSAs on quitting intention is posited to be partly explained by the PSAs' ability to induce smoker-related stigma among smokers. The increased perception of smoker-related stigma, in turn, motivates cessation intentions partly through the arousal of negative emotions. Moreover, smokers' SES (i.e., income and/or education levels) moderate the predicted effect of the stigmatizing PSAs on the perception of stigma, the stigma-induced negative emotions, and the ultimate cessation intentions, such that the expected campaign effect would be stronger among higher SES smokers than among lower SES counterparts. Lastly, perceived self-efficacy should also moderate the anticipated effect of the stigmatizing campaigns, the perceived stigma, and the stigma-induced negative emotions on the ultimate quitting intentions, such that the hypothesized impact of the PSA on cessation intentions will be more evident among smokers with higher levels of self-efficacy than among those with lower levels of self-efficacy.



**Figure 1.** A Moderated Mediation Model about the Effect of Exposure to the Stigmatizing Anti-smoking Campaigns on Smoker's Cessation Intentions



<sup>a</sup> Negative emotions include shame, guilt, anxiety over social image loss, and fear of social exclusion

## **Chapter 3**

### **Methods**

#### **3.1 Research Design**

To test the proposed moderated mediation model, an online experiment was conducted in March 2014. The online experiment had two experiment conditions: stigmatizing PSA condition (anti-smoking PSA that promotes stigma against smokers and smoking behavior) and control PSA condition (anti-smoking PSA that does not include any stigmatizing messages).

#### **3.2 Materials**

Participants watched either stigmatizing or control anti-smoking PSA. For the stigmatizing condition, a 31-second tobacco control campaign video that aired in the state of Alabama was used. The video featured three women of different races (two White Americans and one Black American) who explained what they hate about smoking and smokers, which makes them want to break up with their partner who smokes. The overall tone of narration by the women was explicitly derogating against smokers so that smokers who watched this PSA were very likely to perceive stigma associated with their smoking behavior (e.g., the three featured women narrated that “When I’m with you, I cannot breathe like I’m choking ... you make me feel dirty. I have the right to breathe clean air”). For the control condition, a 34-second anti-smoking campaign video aired in California was employed. In the clip, cigarette smoke was all substituted with colorful bubbles so that people surrounding smokers did not feel any discomfort. Unlike the stigmatizing PSA, the control campaign video did not include any voice-over narration

but a short anti-smoking campaign message was presented in the latter part of the clip (i.e., “Imagine a world without cigarettes”). These two anti-smoking PSA clips well served the purpose of this experiment because both videos promoted smoking cessation but varied in the extent to which they stigmatized smokers and smoking behavior.

The video used in the stigmatizing condition was selected via a pilot study. One hundred undergraduate students at a large Midwestern University participated in the study in exchange for extra credit. Each participant was asked to evaluate four anti-smoking campaign videos presented in a random order. Four PSAs were pre-selected from national or state-level tobacco control campaign videos that were designed and run by the governmental health agencies in the United States. After watching each video, participants completed a 2-item measure that assessed the degree to which each video stigmatized smokers and smoking behavior. In specific, participants were asked to evaluate on a 5-point Likert scale (1 = Not at all, 5 = Extremely) to what extent 1) the video portrayed smoker(s) as a social outcast or pariah and 2) the video suggested that smokers should be excluded from non-smokers. Responses to the two questions were averaged to create a composite index of smoker-related stigmatization ( $M = 3.05$ ,  $SD = 1.19$ ,  $R = .44$ ,  $p < .01$ ) with higher scores indicating the greater discrimination and derogation of smokers and smoking behavior. The video that scored the highest on the stigmatization scale ( $M = 3.76$ ,  $SE = .97$ ) was used in the stigmatizing condition of main experiment. The video in the control condition was not pre-tested and selected at the researcher’s own discretion. Nevertheless, results of manipulation check (presented later in the method section) indicated that the stigmatizing PSA was perceived as stigmatizing smokers more than the control PSA.

### 3.3 Participants

A convenience sample of American smoking adults were recruited via Amazon Mechanical Turk (MTurk), a provider of convenience samples of American adults.<sup>1</sup> People who were interested in participating in this study first answered a screening question that asked about their current smoking status. Only individuals who answered the screening question as they smoke “every day” or “some days” were allowed to participate in the main online experiment. Each participant who completed the experiment was compensated with a cash reward of \$0.50. The URL of this online experiment was posted on MTurk web site for ten days and a total of one hundred and thirty six current smokers participated in the experiment.

To clean up the experiment data, a filter was applied. Responses from twenty five participants, who did not consider themselves as “smoker(s)” even though they indicated that they currently smoke, were ruled out. This is because *phantom* smokers those who did not identify themselves as *real* smokers were less likely to show cessation intentions regardless of which anti-smoking PSA they watched (Berg et al., 2010; Choi, Choi, & Rifon, 2010). The final participant pool included one hundred and eleven respondents who currently smoke as well as identified themselves as *real* smokers.<sup>2</sup>

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<sup>1</sup> All participants for this online experiment were recruited via Amazon Mechanical Turk (MTurk) that provides web-based intellectual labor services for individuals or businesses who request online tasks that range from simple data collection (e.g., gathering some high-quality photographs on the Internet) to online experiment (Paolacci, Chandler, & Ipeirotis, 2010). As many previous researchers found, demographic characteristics of workers on MTurk (so called Turkers) is similar to that of general U.S. population (Ipeirotis, 2009; Ross, Irani, Silberman, Zaldivar, & Tomlinson, 2010).

<sup>2</sup> The time that each participant spent watching the video was recorded using a timer function of Qualtrics, an online survey program used in the experiment. Given the duration of each anti-smoking PSA video (31 seconds for the stigmatizing PSA and 34 seconds for the control PSA), smokers who spent less than 30

Of the 111 participants, just over a half (59%) were males and 42% were females. Their age ranged between 19 and 62 ( $M = 31.54$ ,  $SD = 9.86$ ; see Table 1 for demographic information of the participants included in the final data analyses). Majority of the respondents were Caucasian (77%) followed by African (9%), Hispanic (6%), Asian (6%), and the mixed races or others (2%). As for annual household income, over half of the participants (67%) earned less than \$50,000 per year and the rest (33%) had an annual income equal to or more than \$50,000. In regard to education level, 19% of participants were high school graduates or received their GED, 36% had some college education or currently attending college, and the rest had either earned Associate (15%) or Bachelor's degree (27%). Participants reported that they on average smoke 2.36 cigarettes per day ( $SD = 1.45$ ) and had made 4.63 times ( $SD = 5.35$ ) of serious attempts to quit smoking in the past. Given that smokers' nicotine dependence and the number of previous cessation attempts might influence their future cessation intentions (Breslau & Peterson, 1996; Hymowitz, Cummings, Hyland, Lynn, Pechacek, & Hartwell, 1997), the average number of cigarettes smoked daily and the previous quitting attempts were first included as control variables in the preliminary data analysis. However, neither of them significantly predicted smokers' cessation intentions and thus were dropped from the final data analyses presented here.

**Table 1.** Demographic Information of Participants ( $N = 111$ )

	Frequency ( $n$ )	Percent (%)
<b><i>Gender</i></b>		
Male	65	58.6
Female	46	41.4

seconds on watching the video were supposed to be excluded from further analysis. But all participants in the final subject pool spent more than 30 seconds on the page where the video was played.

<b><i>Race</i></b>		
White or Caucasian	85	76.6
Black or African American	10	9.0
Hispanic	7	6.3
Asian or Pacific Islander	7	6.3
Mixed race or others	2	1.8
<b><i>Annual household income</i></b>		
< \$2,5000	35	31.5
\$25,000 ~ \$39,999	26	23.4
\$40,000 ~ \$49,999	13	11.7
\$50,000 ~ \$74,999	22	19.8
\$75,000 ~ \$99,999	8	6.3
≥ \$100,000	8	7.2
<b><i>Education</i></b>		
High school graduates or GED	20	18.0
Some college credits w/o degree	40	36.0
Trade/technical/vocational training	4	3.6
Associate degree	17	15.3
Bachelor's degree	30	27.0
	<i>Mean</i>	<i>SD</i>
Age	31.54	9.86
Number of cigarettes smoked/day	2.36	1.45
Number of quit attempts	4.63	5.35

### 3.4 Procedure

Participants who passed the screening question on current smoking status were randomly assigned to one of the two experiment conditions in which either the stigmatizing or the control anti-smoking PSA was shown. After the random assignment, participants were asked to complete a questionnaire before and after watching the anti-smoking PSAs. The pre-test questionnaire asked smokers' level of nicotine addiction, previous attempts to quit smoking, self-efficacy in quitting smoking, and demographics (i.e., gender, age, race, education and income level). After answering the pre-test questionnaire, participants were proceeded to watch either the stigmatizing or control PSA and then completed the post-test questionnaire that measured participants'

perception of the extent to which they would be stigmatized by others (i.e., smoker-related stigma), negative emotions invoked by smoker-related stigma (i.e., shame, guilt, anxiety over social image loss, and fear of social exclusion), their ultimate intentions to quit smoking, and manipulation checks.

### **3.5 Measures**

#### **3.5.1 Dependent Variable**

##### *Cessation Intentions*

Participants' cessation intentions were measured by asking respondents to rate their willingness to stop smoking within four different time frames. To be specific, the questions asked participants to rate their likelihood of quitting smoking "in the next 30 days," "3 months," "6 months," or "in the future" on a 5-point Likert scale (1 = Very Unlikely; 5 = Very Likely; see Appendix for exact wording of all measures). These four questions measuring smokers' cessation intentions were adopted from previous studies by Siahpush et al. (2006) and Sorenson et al. (2002). When participants were first asked about their quitting intentions in *the next 30 days*, if they chose "very likely," no more questions on cessation intentions were provided. However, if smokers chose one of the other four options, they were asked a follow-up question asking their cessation plan in the *next 3 months*. In other words, if a smoker responded "very likely" to any question on cessation intentions, no further questions assessing their quitting intentions were asked. If smokers chose one of the other four answers, then they were continuously asked about their willingness to quit in the next shortest time frame until they reached the very last question about their cessation intentions "*in the future*."

Given that the lesser the time remains until actual cessation, the stronger one's quitting intentions, responses to the four questions on cessation intentions were recoded to capture the strength of participants' quitting intentions with higher values indicating stronger willingness to quit smoking ( $M = 1.95$ ,  $SD = 1.41$ ). Specifically, if smokers reported that they were very likely to quit smoking in the shortest time frame (i.e., *in the next 30 day*), their responses were recoded as "5" on the strength scale. If they claimed that they were very likely to quit in the second shortest time frame (i.e., *in the next 3 months*), their responses were coded as "4" on the strength scale. Then, the responses of "very likely" to quit smoking within in *the next 6 months* were recoded as "3." Lastly, "very likely" to quit *in the future* was coded as "2," "likely" to quit *in the future* coded as "1" on the strength scale.

### **3.5.2 Moderating Variables**

#### *Smokers' SES*

Smokers' SES was assessed using both education and income levels. Participants were asked to choose from nine different educational levels, including no schooling completed, nursery school to 8<sup>th</sup> grade, some high school (or no diploma), high school graduate (diploma or GED), some college credits (or no degree), trade/technical/vocational training, associate degree, bachelor's degree, and master's/professional/doctorate degree. Participants' annual household income was also measured by six different categories: less than \$25,000, \$25,000 - \$39,999, \$40,000 - \$49,999, \$50,000 - \$74,999, \$75,000 - \$99,999, and \$100,000 or more. However, given that majority of participants (81%) received at least some college education, the lack of



variance in the sample distribution of education levels implied that using education as an indicator of SES would undermine my ability to test whether smokers' SES actually modify the effect of anti-smoking campaigns on cessation intentions.

In contrast, participants showed relatively more variance on household annual income, such that 67% of participants had low level of annual income (less than \$50,000) and 33% had high level of income (\$50,000 or more; for the low versus high household annual income thresholds, see the U.S. Department of Health and Human Services, 2014). Moreover, earlier studies have suggested that household annual income is a stronger predictor of health disparities in society than individuals' education levels (Adler & Newman, 2002; Kennedy, Kawachi, Glass, & Prothrow-Stith, 1998; Stronks, Van De Mheen, Van Den Bos, & Mackenbach, 1997). Hence, income was employed as an indicator of smokers' SES in the analysis presented below.

### *Perceived Self-efficacy in Cessation*

Individual differences in perception of self-efficacy in quitting smoking was captured by asking participants to rate on a 5-point scale (1 = Strongly Disagree; 5 = Strongly Agree) seven statements, such as "I can always quit smoking if I try hard enough" and "It is easy for me to quit smoking successfully if I plan to do so" ( $M = 3.49$ ,  $SD = 0.71$ ,  $\alpha = .85$ ). The measure of self-efficacy was created in reference to the General Self-Efficacy Scale (GSES; Schwarzer & Jerusalem, 1995). Since the original GSES assesses a general sense of perceived self-efficacy in overcoming difficult and stressful events in life (Schwarzer & Jerusalem, 1995), the original scale was modified to fit into the context of this study. All responses to the self-efficacy measures were averaged to

create an index of perceived self-efficacy, such that higher values indicated the stronger self-confidence in cessation of smoking. The same method was used to create indices for other variables examined in this study.

### **3.5.3 Mediating Variables**

#### *Smoker-related Stigma*

Perception of smoker-related stigma was measured by asking participants to evaluate on a 5-point Likert Scale (1 = Strongly Disagree; 5 = Strongly Agree) nine statements, such as “After watching the anti-smoking campaign video, I think people tend to devalue or look down on me because I am a smoker” and “I feel like I am sometimes treated like an outcast because I smoke” ( $M = 3.53$ ,  $SD = 0.79$ ,  $\alpha = .92$ ). Given that there were no extant scale assessing smoker-related stigma, measure of smoker-related stigma was developed in reference to a scale that taps the perception of discrimination and isolation among lung cancer patients, namely the Cataldo Lung Cancer Stigma Scale (CLCS; Cataldo et al., 2012). Since the original CLCS measures how lung cancer patients experience negative evaluation and discriminative treatment from others, wording of the original statements was revised to make them more pertain to the context of this study.

#### *Shame*

Shame induced by experiencing smoker-related stigma was measured by asking participants to rate on a 5-point Likert scale (1 = Strongly Disagree; 5 = Strongly Agree) five statements, such as “I feel ashamed that I am a smoker” and “I feel inferior or small to others who do not smoke” ( $M = 2.87$ ,  $SD = 1.05$ ,  $\alpha = .91$ ). These statements were

modified from measures used by Fife & Wright (2000)'s study that assessed the perception of shame among HIV/AIDS patients as a result of perceiving stigma surrounding them. Revision of the wording of each original statement was necessary to make the measure more relevant to the topic of this thesis.

### *Guilt*

Guilt associated with smoking behavior was captured by asking participants to rate on a 5-point Likert scale (1 = Strongly Disagree; 5 = Strongly Agree) five statements adapted from the Guilt Inventories (GI; Mosher, 1968), such as "I feel as if I have done something wrong about my smoking behavior" and "I feel as if I would be deeply punished by my smoking behavior" ( $M = 2.96$ ,  $SD = 0.94$ ,  $\alpha = .86$ ). Since the original GI estimates the general tendency of feeling guilty, the wording of the GI was modified to assess the guilty feeling perceived by smokers about their smoking behavior.

### *Anxiety over Social Image Loss*

Anxiety over social image loss was assessed by asking participants to rate on a 5-point Likert scale (1 = Strongly Disagree; 5 = Strongly Agree) seven statements, such as "I feel anxious if other people have negative images of me once they know I am a smoker" and "I am worried about whether I am seen negatively to others due to my smoking behavior" ( $M = 3.23$ ,  $SD = 1.03$ ,  $\alpha = .96$ ). These statements were adapted from the Internalized Stigma of Mental Illness Scale (ISMIS; Ritsher, Otilingam, & Grajales, 2003) and the Fear of Negative Evaluation Scale (NES; Watson & Friend, 1969). In particular, among the measures of the ISMIS and the NES, only several statements that

were relevant to measuring anxiety over social image loss were selected and modified to fit into the context of this study.

### *Fear of Social Exclusion*

Considering there were no existing scales that capture fear of social isolation, such emotion was measured by asking participants to rate on a 5-point Likert scale (1 = Strongly Disagree; 5 = Strongly Agree) six statements – adapted from the UCLA Loneliness scale (LS; Russell, 1996) – such as “I am fearful of being left out by others due to my smoking behavior” and “I am scared of losing companionship due to my smoking behavior” ( $M = 2.93$ ,  $SD = 1.10$ ,  $\alpha = .96$ ). The LS is a very commonly used scale that assesses people’s dreadful feeling of social isolation (Russell, Peplau, & Ferguson, 1978), therefore, several statements were applicable to measuring the fear of social exclusion in this study.

### **3.6 Manipulation Checks**

Manipulation checks were conducted by asking participants to evaluate on a 5-point scale (1 = Not at all; 5 = Extremely) the extent to which the PSA they watched portrayed smokers and smoking in a negative light. To be specific, participants were asked to what extent 1) the video described smoker(s) as a social outcast or pariah and 2) the video suggested that smokers should be isolated from non-smokers ( $M = 2.77$ ,  $SD = 1.37$ ,  $R = .80$ ,  $p < .01$ ). The independent *t-test* indicated the stigmatizing PSA was perceived to depict smokers and smoking behavior as more disdainful and discriminative

( $M = 3.64$ ,  $SD = .96$ ) than was the control PSA ( $M = 1.86$ ,  $SD = 1.12$ ;  $t(109) = -8.98$ ,  $p < .001$ ).

### **3.7 Analytical Procedure**

The proposed moderated mediation model was tested via two steps of data analyses. First, thirteen hierarchical regression analyses were conducted to test the proposed moderation effects of smokers' income levels and self-efficacy. To be more specific, six hierarchical regression models were estimated to investigate the moderating effects of smokers' income levels in the following relationships between 1) exposure to the stigmatizing PSA and perception of smoker-related stigma, 2) exposure to the stigmatizing PSA and negative emotions (i.e., shame, guilt, anxiety, fear), and 3) exposure to the stigmatizing PSA and cessation intentions. In order to estimate the moderating effects of income levels, exposure to the stigmatizing PSA and smokers' income were entered into the first block of the regression analysis and its interaction term to the second block.

Likewise, the moderating effects of self-efficacy were also examined using seven hierarchical regression models. First, a three-way interaction effect was tested in which smokers' income levels as well as self-efficacy concurrently moderated the relationship between exposure to anti-smoking PSA and cessation intentions. In order to estimate the three-way interaction effect, exposure to the stigmatizing PSA, smokers' income levels, and self-efficacy were all entered into the first block, the two-way interaction terms (i.e., exposure to the stigmatizing PSA\*income; exposure to the stigmatizing PSA\*self-

efficacy, and income\*self-efficacy) into the second block, and the three-way interaction term (i.e., exposure to the stigmatizing PSA\*income\*self-efficacy) into the third block.

Second, six hierarchical regression analyses were conducted to examine the moderation effects of self-efficacy in the following relationships between 1) exposure to the stigmatizing PSA and cessation intentions, 2) perception of stigma and cessation intentions, and 3) negative emotions (i.e., shame, guilt, anxiety, or fear) and cessation intentions. When estimating the first moderation effect of self-efficacy, exposure to the stigmatizing PSA and self-efficacy were entered into the first block of the regression analysis and their interaction term was put into the second block. As for the estimation of the second moderation effect, the perceived stigma among smokers and self-efficacy were entered into the first block and their interaction term to the second block. Using the same method, the estimation of the third moderation effect was conducted by entering each of the negative emotions (i.e., shame, guilt, anxiety, or fear) and self-efficacy into the first block and their interaction term into the second block (i.e., shame\*self-efficacy, guilt\*self-efficacy, anxiety\*self-efficacy, or fear\*self-efficacy).

If any moderation effects of smokers' income or self-efficacy were found significant, follow-up analyses were conducted using the Pick-a-Point approach (Rogosa, 1980) to probe the significant effects of the proposed independent variable on the dependent variable at two different levels of moderator(s) – one standard deviation above and below the mean (Hayes, 2013).

If the results of the regression analyses indicated that the proposed path(s) from exposure to the stigmatizing PSA (vs. the control PSA) to cessation intentions were significant, the PROCESS macro (Hayes, 2013) was used to test the (conditional) indirect

effect(s) of the stigmatizing PSA on cessation intentions. The macro employed a bootstrap approach to estimate (conditional) direct or indirect effects. The resulting 95% bias-corrected confidence intervals (BcCI) were obtained through 1,000 resamples. Statistically significant conditional direct/indirect effects were indicated by the BcCIs excluding zero (Hayes, 2013).

## Chapter 4

### Results

#### 4.1 Preliminary Analyses

Before running hierarchical regressions to estimate the hypothesized moderation effects, bivariate correlations between key variables were examined (see Table 2). Exposure to the stigmatizing PSA had a significant negative association with shame ( $r = -.19, p < .05$ ), guilt ( $r = -.20, p < .05$ ), anxiety over social image loss ( $r = -.19, p < .05$ ) but not with fear of social exclusion ( $r = -.05, p > .05$ ). Perception of stigma against smokers was positively associated with negative emotions, that is, shame ( $r = .41, p < .01$ ), guilt ( $r = .31, p < .01$ ), anxiety ( $r = .49, p < .01$ ), fear ( $r = .53, p < .01$ ). Moreover, negative emotions were positively associated with cessation intentions (for shame,  $r = .26, p < .01$ ; for guilt,  $r = .33, p < .01$ ; for anxiety,  $r = .27, p < .01$ ; for fear,  $r = .31, p < .01$ ). Lastly, exposure to the stigmatizing PSA was positively correlated with self-efficacy ( $r = .19, p < .05$ ).

**Table 2.** Descriptive Statistics and Bivariate Correlations between Variables

Variables	1	2	3	4	5	6	7	8	9	<i>M</i>	<i>SD</i>
1. Stigmatizing PSA	--									0.51	0.50
2. Income	.01	--								2.68	1.59
3. Stigma	.04	-.05	--							3.53	0.79
4. Shame	-.19*	-.14	-.41**	--						2.87	1.05
5. Guilt	-.20*	.05	.31**	.75**	--					2.96	0.94
6. Anxiety	-.19*	-.05	.49**	.76**	.64**	--				3.23	1.03
7. Fear	-.05	-.10	.53**	.73**	.67**	.83**	--			2.93	1.10
8. Self-efficacy	.19*	-.03	.12	-.01	-.09	.03	.03	--		3.49	0.71
9. Cessation Intentions	.00	.03	.17	.26**	.33**	.27**	.31**	.18	--	1.95	1.41



Note. All zero-order coefficients are based on two-tailed tests; \*  $p < .05$ ; \*\*  $p < .01$

## 4.2 Moderation Analyses

### *Moderation Effects of Smokers' Income*

First, the analysis showed the insignificant main effects of exposure to the stigmatizing campaign ( $\beta = .00, p > .05$ ) and income ( $\beta = .03, p > .05$ ) on cessation intentions. But there was the predicted significant interaction effect between exposure to the stigmatizing PSA and income on cessation intentions ( $\beta = .69, p < .01$ ; see Table 3).

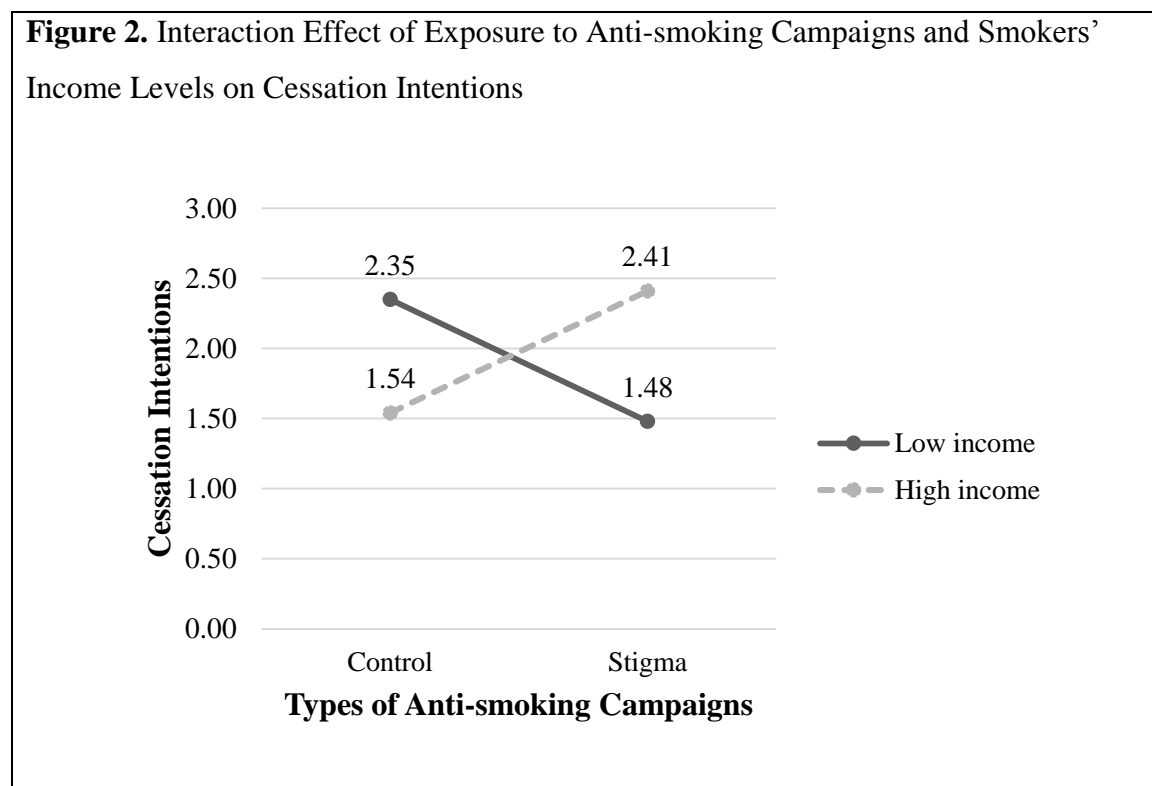
**Table 3.** Testing the Interaction Effect of Exposure to Anti-smoking Campaigns and Smokers' Income Levels on Cessation Intentions or Shame

	Cessation Intentions			Shame		
	<i>B</i> (SE)	$\beta$	$\Delta R^2$	<i>B</i> (SE)	$\beta$	$\Delta R^2$
<i>Step 1</i>			.00			.04*
Constant	1.89(.30)			3.33(.22)		
PSA	.00(.27)	.00		-.40(.20)*	-.19	
Income	.02(.09)	.03		-.10(.06)	-.14	
<i>Step 2</i>			.10*			.08*
Constant	2.63(.36)			3.71(.27)		
PSA	-1.47(.51)**	-.52		-	-.55	
				1.14(.38)**		
Income	-.26(.12)*	-.29		-.24(.09)**	-.36	
PSA*Income	.55(.16)**	.69		.28(.12)*	.46	

Note. \*  $p < .05$ , \*\*  $p < .01$

Further analysis found that for smokers with the lower level of annual income (i.e., one standard deviation below the mean), exposure to the stigmatizing PSA (vs. the control PSA) decreased cessation intentions (Effect size =  $-.87, SE = .37, t(107) = -2.38, p < .05$ ), whereas for smokers with the higher income (i.e., one standard deviation above

the mean), watching the stigmatizing PSA elevated their cessation intentions (Effect size = .87,  $SE = .36$ ,  $t(107) = -2.40$ ,  $p < .05$ ; see Figure 2).

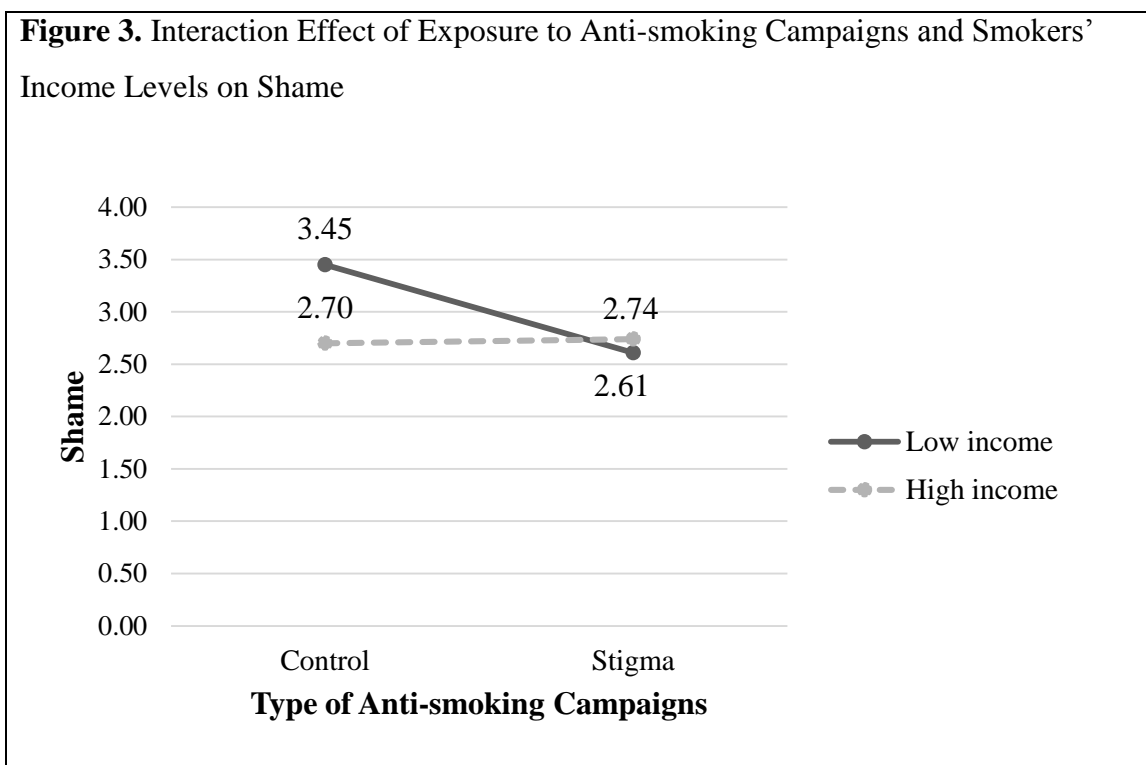


Second, neither exposure to the stigmatizing PSA ( $\beta = .04$ ,  $p > .05$ ) nor income ( $\beta = -.05$ ,  $p > .05$ ) showed the significant main effect on the perception of stigma. The effect of exposure to the stigmatizing PSA on perception of stigma was not statistically different depending on smokers' income either ( $\beta = .08$ ,  $p > .05$ ).

Lastly, the analyses found the significant negative main effects of exposure to the stigmatizing PSA on shame ( $\beta = -.19$ ,  $p < .05$ ), guilt ( $\beta = -.20$ ,  $p < .05$ ), and anxiety ( $\beta = -.19$ ,  $p < .05$ ), but not on fear ( $\beta = -.05$ ,  $p > .05$ ). In other words, smokers who watched the stigmatizing PSA showed the lower levels of shame, guilt, and anxiety than those who

watched the control PSA. Smokers' income levels had no significant main effects on negative emotions (for shame,  $\beta = -.14, p > .05$ ; for guilt,  $\beta = .05, p > .05$ ; for anxiety,  $\beta = -.05, p > .05$ ; for fear,  $\beta = -.10, p > .05$ ). As for the interaction effects between exposure to the stigmatizing PSA and income on the negative emotions, the interaction effect was significant for shame ( $\beta = .46, p < .05$ ; see Table 3), but not for the other negative emotions (guilt,  $\beta = .34, p > .05$ ; anxiety,  $\beta = .26, p > .05$ ; fear,  $\beta = .30, p > .05$ ).

Further analysis on the significant interaction effect between exposure to the PSA and income revealed that, for smokers with lower income (i.e., one standard deviation below the mean), the stigmatizing PSA was less likely to induce shame than was the control PSA (Effect size =  $-.84, SE = .27, t(107) = -3.09, p < .01$ ; as illustrated in Figure 3). For smokers with the higher annual income (i.e., one standard deviation above the mean), however, the stigmatizing PSA (vs. control PSA) had no significant difference in shame (Effect size =  $.04, SE = .27, t(107) = 0.13, p > .05$ ). Taken together, the findings suggest that the negative effect of the stigmatizing PSA on decreasing cessation intentions among the lower income smokers may be driven by their lower degree of perceived shame on their smoking behavior.



#### *Moderating Effects of Self-efficacy*

First, when the three-way interaction effect between exposure to the stigmatizing PSA, smokers' income, and self-efficacy on cessation intentions was tested, no significant main effects of the stigmatizing PSA ( $\beta = .00, p > .05$ ), income ( $\beta = .03, p > .05$ ), and self-efficacy ( $\beta = .18, p > .05$ ) on cessation intentions were found. The two-way interaction effects were not statistically significant either (i.e., for exposure to the stigmatizing PSA\*income,  $\beta = .57, p > .05$ ; for exposure to the stigmatizing PSA\*self-efficacy,  $\beta = .32, p > .05$ ; for income\*self-efficacy,  $\beta = -.12, p > .05$ ). Moreover, the three-way interaction was not significant ( $\beta = .11, p > .05$ ).

Second, the main effect of exposure to the stigmatizing PSA ( $\beta = .001, p > .05$ ) and self-efficacy on cessation intentions were not significant ( $\beta = .18, p < .10$ ); nor was the interaction effect between the two on cessation intentions ( $\beta = .34, p > .05$ ).

Third, the main effect of the perceived stigma on cessation intentions ( $\beta = .17, p > .05$ ) and the interaction effect of the perceived stigma and self-efficacy on the quitting intentions were not significant ( $\beta = -1.06, p > .05$ ).

Lastly, when smokers' cessation intentions were predicted by the various negative emotions, all four emotions had a significantly positive main effect on the quitting intentions (for shame,  $\beta = .26, p < .01$ ; guilt,  $\beta = .33, p < .001$ ; anxiety,  $\beta = .27, p < .01$ ; fear,  $\beta = .31, p < .01$ ). Moreover, the analyses found the significant interaction effects of shame\*self-efficacy ( $\beta = -1.12, p < .05$ ; see Table 4), guilt\*self-efficacy ( $\beta = -.93, p < .05$ ), and fear\*self-efficacy, ( $\beta = -1.26, p < .05$ ) on cessation intentions, but the effect of anxiety\* self-efficacy ( $\beta = .16, p > .05$ ) was not significant.

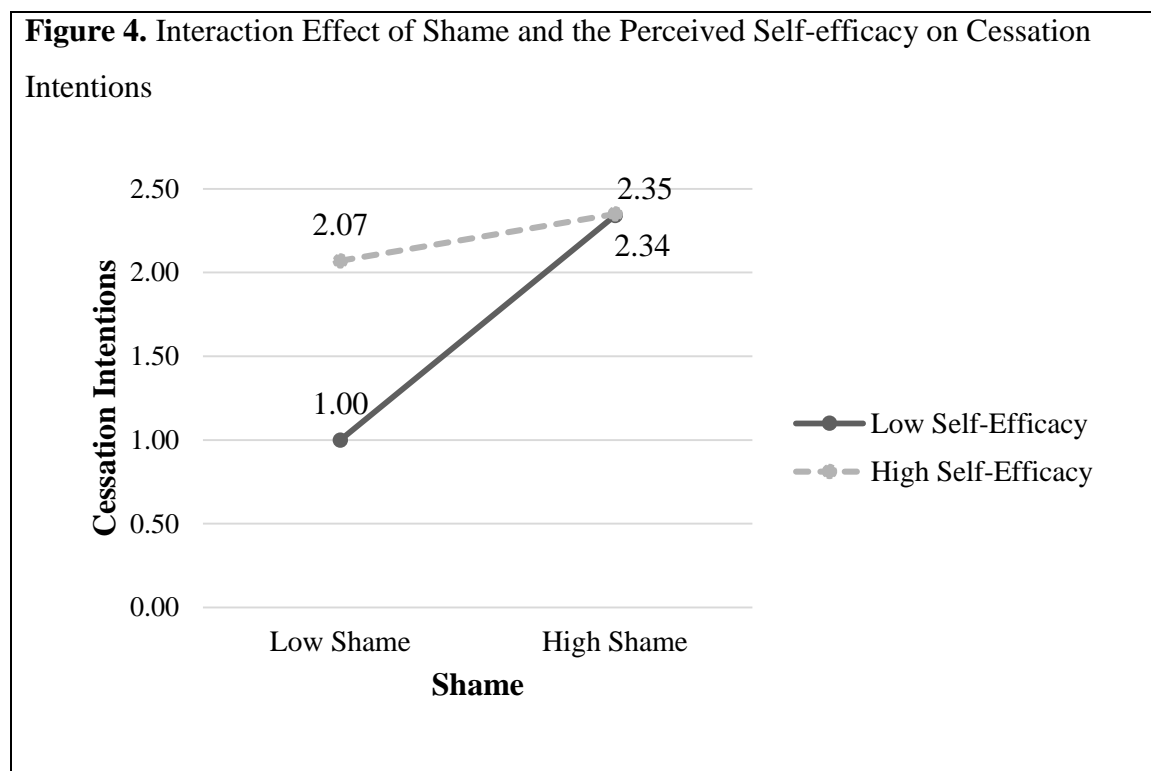
**Table 4.** Testing the Interaction Effect of Exposure to Anti-smoking Campaigns and the Perceived Self-efficacy on Cessation Intentions

Cessation Intentions			
	<i>B</i> (SE)	$\beta$	$\Delta R^2$
<i>Step 1</i>			.10**
Constant	-.29(.74)		
Shame	.34(.12)**	.26	
Self-efficacy	.36(.18)	.18	
<i>Step 2</i>			.04**
Constant	-4.09(1.82)*		
Shame	1.64(.58)**	1.23	
Self-efficacy	1.41(0.50)**	.71	
Shame*Self-efficacy	-.36(.16)*	-1.12	

Note. \*  $p < .05$ , \*\*  $p < .01$

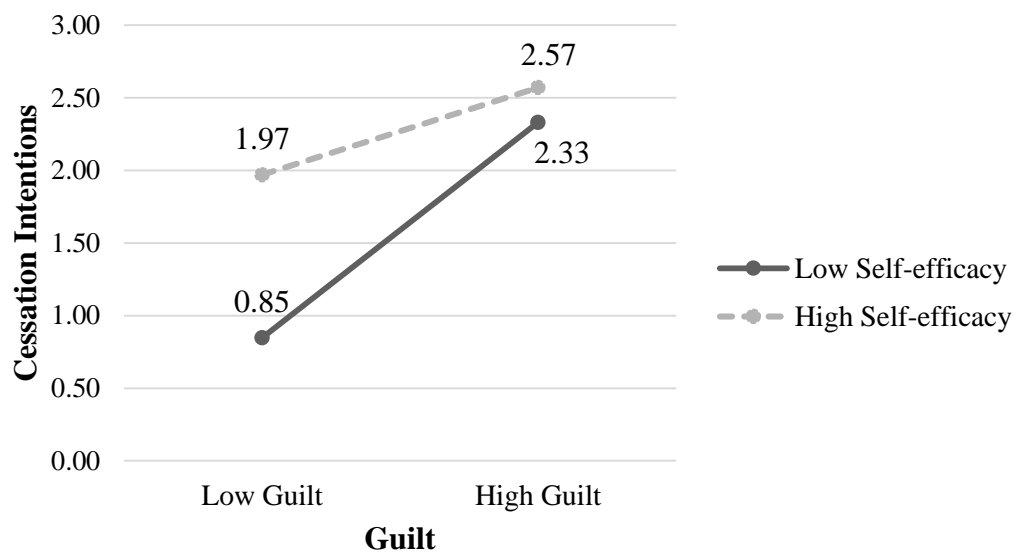
As illustrated in Figure 4, for smokers with a lower level of self-efficacy (i.e., one standard deviation below the mean), shame was significantly positively related to quitting

intention (Effect size = .64,  $SE = .18$ ,  $t(107) = 3.62$ ,  $p < .001$ ), whereas for smokers with a higher levels of self-efficacy (i.e., one standard deviation above the mean), shame was not significantly associated with willingness to quit (Effect size = .14,  $SE = .15$ ,  $t(107) = .90$ ,  $p > .05$ ).

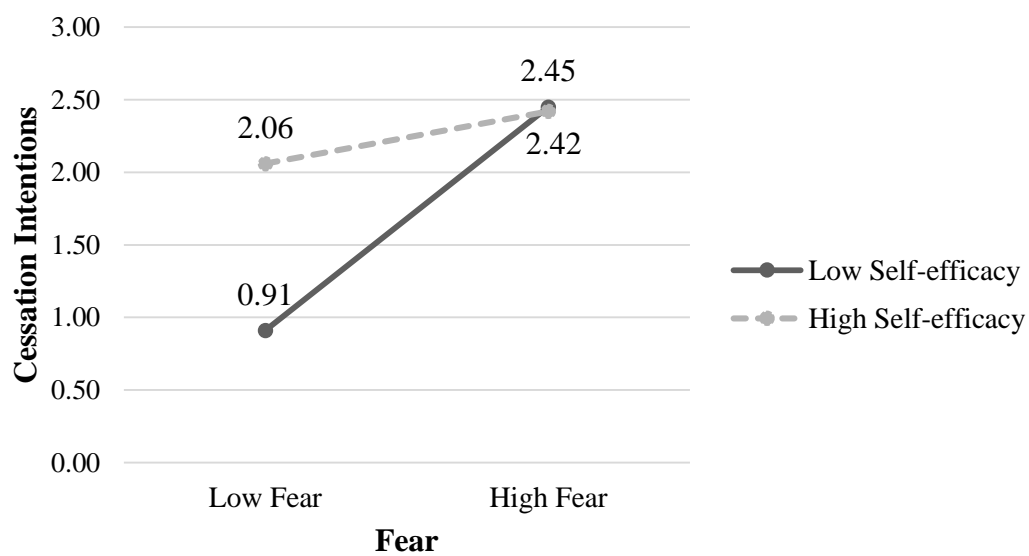


In a similar vein, for smokers with a lower level of self-efficacy, guilt (Effect size = .79,  $SE = .19$ ,  $t(107) = 4.27$ ,  $p < .001$ ) and fear over social exclusion (Effect size = .70,  $SE = .16$ ,  $t(107) = 4.26$ ,  $p < .001$ ) were significantly positively associated with quitting intentions (see Figures 5 and 6). For smokers with a relatively higher level of self-efficacy, however, guilt (Effect size = .32,  $SE = .17$ ,  $t(107) = 1.93$ ,  $p > .05$ ) and fear (Effect size = .16,  $SE = .14$ ,  $t(107) = 1.15$ ,  $p > .05$ ) were not associated with cessation intentions.

**Figure 5.** Interaction Effect of Guilt and the Perceived Self-efficacy on Cessation Intentions



**Figure 6.** Interaction Effect of Fear and the Perceived Self-efficacy on Cessation Intentions



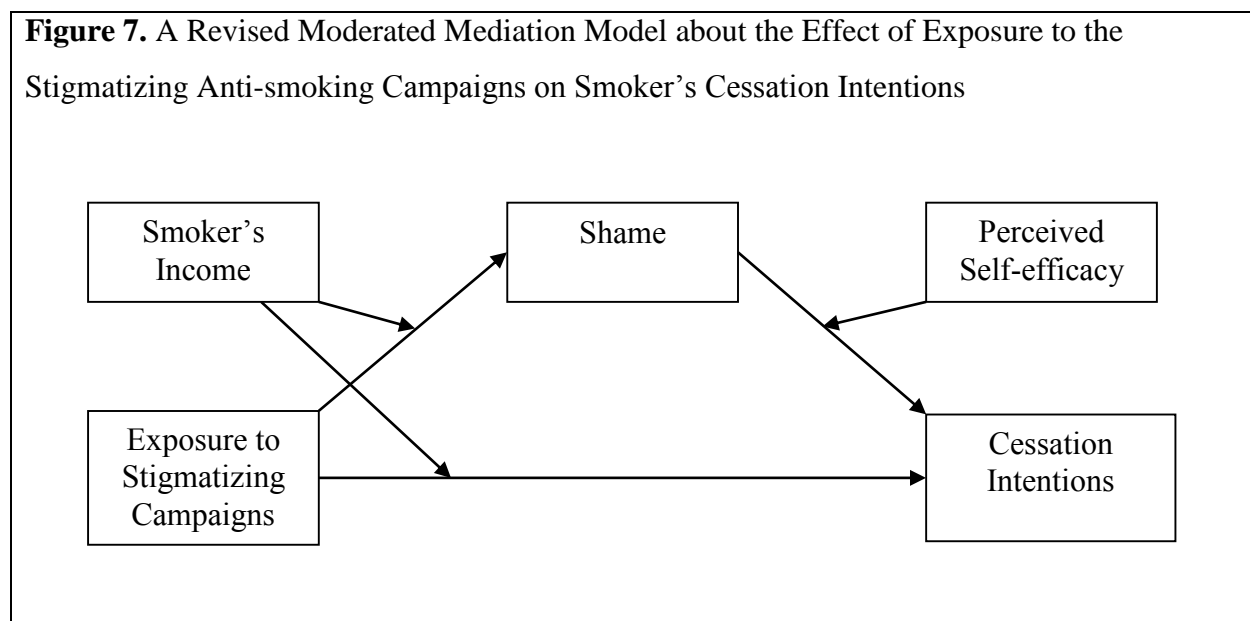
### 4.3 Moderated Mediation Analysis

A simple mediation effect was first examined using the PROCESS macro (Model 4) as a basis for testing the statistical significance of the direct and indirect effects of exposure to the stigmatizing PSA on cessation intentions through shame. As previously noted, exposure to the stigmatizing PSA was negatively associated with feeling shameful emotion ( $\beta = -.19, p < .05$ ) and shame was positively associated with cessation intentions ( $\beta = .26, p < .01$ ). However, exposure to anti-smoking PSAs was not at all related to cessation intentions ( $\beta = .00, p > .05$ ), which violates one of the prerequisite conditions of estimating the simple mediation effect (i.e., independent variable should be significantly associated with dependent variable; Baron & Kenny, 1986). Nevertheless, Kenny, Kashy, and Bolger (1998) suggested that an indirect effect may exist (see more Chen, Hsiao, Chern, & Chen, 2014; Shrout & Bolger, 2002) regardless of the direct effect of exposure to the stigmatizing PSAs (independent variable) on cessation intentions (dependent variable). Consistent with Kenny et al. (1998)'s argument, the simple mediation analysis revealed that the indirect effect of exposure to the stigmatizing PSA on cessation intentions through shame was significant (Effect size =  $-.14$ , 95% Boot CI [ $-.40, -.03$ ]) without the significant direct effect of exposure to the stigmatizing PSAs on cessation intention (Effect size =  $-.15$ ,  $SE = .27$ , 95% Boot CI [ $-.38, .67$ ]). Hence, the mediating effect of smokers' shameful feeling between exposure to the stigmatizing PSA and smokers' cessation intentions was found.

Drawing on the significant moderation effects of smokers' income or self-efficacy between the following causal relationships: for smokers' income, the relationships between 1) exposure to the stigmatizing PSA and cessation intentions, 2) exposure to the



stigmatizing PSA and shame; for self-efficacy, the relationship between 3) shame and cessation intentions, the revised moderated mediation model (see Figure 7) was suggested that examines the effect of exposure to the stigmatizing PSA on cessation intentions via shame, which were simultaneously moderated by income and self-efficacy.



To test the revised moderated mediation model drawn on the significant results from the regression analyses, the conditional direct effect of exposure to the stigmatizing PSA on cessation intentions at different levels of income was first examined. To be specific, five different levels of smokers' income were selected that correspond to the 10<sup>th</sup>, 25<sup>th</sup>, 50<sup>th</sup>, 75<sup>th</sup>, and 90<sup>th</sup> percentiles in the sample distribution of income. Percentiles represent the "very low," "low," "moderate," "high," and "very high" levels of income, respectively. The results indicated that for smokers with the lowest income (i.e., the 10<sup>th</sup> percentile of the income distribution), the stigmatizing PSA significantly decreased their cessation intentions (see Table 5), whereas for smokers who belong to the highest income

level (i.e., the 90<sup>th</sup> percentile), the same stigmatizing PSA message significantly increased their willingness to quit.

**Table 5.** Conditional Direct Effect of Exposure to the Stigmatizing Anti-smoking Campaigns on Cessation Intentions at Various Income Levels

Income	Effect size (SE)	<i>t</i>
1.00	-.74(.37)*	-1.98
1.00	-.74(.37)*	-1.98
2.00	-.31(.28)	-1.11
4.00	.55(.33)	1.67
5.00	.98(.45)*	2.19

*Note.* The income levels represent the 10<sup>th</sup>, 25<sup>th</sup>, 50<sup>th</sup>, 75<sup>th</sup>, and 90<sup>th</sup> percentiles of the bootstrapped distribution of smokers' income; \*  $p < .05$

Second, the indirect interaction effects between exposure to the stigmatizing PSA and cessation intentions via shame was significant among smokers who have certain levels of annual income and self-efficacy in successful smoking ( $F(6, 104) = 4.34, p < .001$ ). To be specific, for smokers who earn the very low annual income (i.e., at or below the 10<sup>th</sup> percentile of annual income distribution), the stigmatizing PSA induced the lower degree of shame on their smoking behavior. Then, among those lower income smokers, individuals who also showed the moderate to lower levels of self-efficacy in successful quitting of smoking (i.e., at or below 50<sup>th</sup> percentile) tended to express the less willingness to quit smoking because their decreased perception of shame contributed to lower their cessation intentions. Taken together, these findings implied that for smokers with the lower levels of income, the stigmatizing PSA evoked the significantly less shame on their smoking behavior and such diminished levels of shame in turn decreased their cessation intentions, particularly when those low-income smokers possessed the

lower self-confidence in successful cessation (see the negative signs of the significant effect size in the third column of Table 6).

**Table 6.** Conditional Indirect Effects of Exposure to the Stigmatizing Anti-smoking Campaigns on Cessation Intentions through Shame at Various Values of Income Levels and the Perceived Self-efficacy

Income <sup>a</sup>	Self-efficacy <sup>b</sup>	Effect size (SE)	95% Boot CI
1.00	2.57	-0.56 (.28) <sup>*</sup>	[-1.35, -.19]
1.00	3.00	-0.43 (.22) <sup>*</sup>	[-1.05, -.14]
1.00	3.43	-0.30 (.17) <sup>*</sup>	[-.81, -.08]
1.00	4.00	-0.13 (.14)	[-.52, .08]
1.00	4.43	0.00 (.17)	[-.36, .34]
1.00	2.57	-0.56 (.28) <sup>*</sup>	[-1.35, -.19]
1.00	3.00	-0.43 (.22) <sup>*</sup>	[-1.05, -.14]
1.00	3.43	-0.30 (.17) <sup>*</sup>	[-.81, -.08]
1.00	4.00	-0.13 (.14)	[-.52, .08]
1.00	4.43	0.00 (.17)	[-.36, .34]
2.00	2.57	-0.38 (.19) <sup>*</sup>	[-.90, -.12]
2.00	3.00	-0.30 (.15) <sup>*</sup>	[-.69, -.09]
2.00	3.43	-0.21 (.11) <sup>*</sup>	[-.53, -.05]
2.00	4.00	-0.09 (.10)	[-.36, .05]
2.00	4.43	-0.00 (.12)	[-.26, .25]
4.00	2.57	-0.02 (.16)	[-.37, .32]
4.00	3.00	-0.02 (.12)	[-.29, .25]
4.00	3.43	-0.01 (.09)	[-.22, .18]
4.00	4.00	-0.01 (.05)	[-.18, .08]
4.00	4.43	-0.00 (.04)	[-.14, .10]
5.00	2.57	0.16 (.23)	[-.29, .75]
5.00	3.00	0.12 (.18)	[-.23, .62]
5.00	3.43	0.08 (.13)	[-.15, .45]
5.00	4.00	0.04 (.08)	[-.06, .35]
5.00	4.43	0.00 (.08)	[-.15, .18]

*Note.* <sup>a</sup> the 10<sup>th</sup>, 25<sup>th</sup>, 50<sup>th</sup>, 75<sup>th</sup>, and 90<sup>th</sup> percentiles of the bootstrapped distribution of smokers' income levels; <sup>b</sup> the 10<sup>th</sup>, 25<sup>th</sup>, 50<sup>th</sup>, 75<sup>th</sup>, and 90<sup>th</sup> percentiles of the bootstrapped distribution of self-efficacy in cessation; a significant effect is indicated by a 95% Bootstrap CIs excluding zero; \*  $p < .05$

Overall, the moderated mediation analysis showed that the stigmatizing campaign video elicited the unintended effect on inhibiting cessation intentions, particularly among

smokers who belong to the lower economic status and also have less self-efficacy in quitting smoking (see Table 7).

**Table 7.** Testing the Revised Moderated Mediation Model

	Coefficient	SE	T	95% Boot CI
Constant	-3.22	1.85	-1.74	[-6.89, .45]
PSA	-1.17*	.50	-2.33	[-2.17, -.17]
Income	-.16	.12	-1.42	[-.39, .07]
Shame	1.55**	.57	2.71	[.41, 2.69]
Self-efficacy	1.34**	.49	2.72	[.36, 2.31]
PSA*Income	.43**	.16	2.69	[.11, .75]
Shame*Self-efficacy	-.35*	.16	-2.25	[-.66, -.04]

Note.  $R^2 = .20$ ,  $F(6, 104) = 4.34$ ,  $p < .001$ ; \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

Hence, the overall findings provided the limited support for the original moderated mediation model (see Figure 1) that hypothesized the conditional direct and/or indirect effects of exposure to the stigmatizing PSA on cessation intentions. To be specific, the direct effect of exposure to the stigmatizing PSA on willingness to quit smoking was not significant; nor is the main effect of exposure to the stigmatizing campaign on the perception of stigma. Thus, further analyses on the mediating effects of the perceived stigma on cessation intentions was not necessary. Nonetheless, the significant interaction effect between 1) exposure to the stigmatizing PSA and income on cessation intentions, 2) exposure and income on shame, and 3) shame and the perceived self-efficacy on cessation intentions provided the support for the revised moderated mediation model, as illustrated in Figure 7. The significant conditional direct effect showed that the same stigmatizing PSA message resulted in the differential direction of cessation intentions as a function of smokers' income levels: for the higher income

smokers, exposure to the PSA led to the higher levels of quitting intentions, whereas for the lower income smokers, the same campaign message gave rise to the lower levels of cessation intentions. Moreover, the significant conditional indirect effect results indicated that the stigmatizing PSA led the socioeconomically disadvantaged smokers to perceive less shame on their smoking behavior and such decrease in shameful feeling was later translated into the lower levels of cessation intentions, particularly among the low-income smokers who also have the moderate to low degree of self-efficacy.

## **Chapter 5**

### **Discussion**

Anti-smoking campaigns have been considered to play a critical role in decreasing the smoking rates at a population level in the United States (Bell et al., 2010; Hammond et al., 2006; Kim & Shanahan, 2003), particularly through stigmatizing smokers and their smoking behavior. However, the impact of such stigmatizing campaigns has been limited to the socioeconomically advantaged smokers. As a result, there has been a growing disparity in cessation rates between high and low SES smokers (Killoran, Own, & Bauld, 2006; Stuber et al., 2008). Such growing disparities raise the questions of how and why the influence of the stigmatizing campaigns varies depending upon smokers' SES.

To answer these questions, this thesis tested a moderated mediation model which attempts to explain the effect of anti-smoking campaigns that promote smoker-related stigma on cessation intentions, while taking into account the moderating role of smokers' SES and self-efficacy. According to the model, exposure to stigmatizing (vs. other) anti-smoking PSAs should increase cessation intentions. The expected impact of the stigmatizing campaign on cessation intentions should be partly explained by the PSAs' ability to increase the perception of smoker-related stigma that induces negative emotions (i.e., shame, guilt, anxiety over social image loss, fear of social exclusion). Moreover, smokers' SES was expected to moderate the effects of the stigmatizing campaign on the perception of stigma, the stigma-induced negative emotions, and their cessation intentions, such that the predicted impact of the stigmatizing PSA would be stronger among higher SES smokers than among lower SES counterparts. Lastly, the hypothesized

effects of the stigmatizing campaign, the perceived stigma, and the negative emotions on the quitting intentions were expected to differ by smokers' self-efficacy, such that the effects of the stigmatizing PSA, the perception of stigma, and the negative emotions on cessation intentions would be more evident among smokers with the higher levels of self-efficacy than among those who perceived the lower levels of self-efficacy.

To test the model, an experiment was conducted and the results provided the limited support for the proposed model. First, inconsistent with the predicted direct effect of exposure to the stigmatizing PSA on cessation intentions, the results showed that smokers' willingness to quit smoking did not significantly differ by the types of anti-smoking campaigns they watched. This finding suggested that the degree to which anti-smoking PSAs derogated smokers and smoking behaviors *per se* did not result in any considerable differences in smokers' cessation intentions. Instead, such insignificant effect of the stigmatizing PSA on cessation intentions implied the possible roles of other factors in predicting the disparities in smokers' quitting intentions, such as smokers' social status or self-efficacy.

Second, the hypothesized main effect of watching the stigmatizing PSA on the perception of stigma was not significant; nor was the predicted interaction effect of exposure to the stigmatizing PSA and smokers' income on the perception of stigma. There are several possible explanations for why the stigmatizing PSA did not evoke greater perception of stigma than did the control PSA. One possible reason is that participants might have argued against the stigmatizing campaign message that endorsed the stigma against themselves and their delinquent behavior. Although the manipulation checks showed that smokers perceived the stigmatizing PSA as more contemptuous of

smokers than did the control PSA, smokers did not think that they would be stigmatized by others as portrayed in the stigmatizing campaign video.

Another plausible explanation might relate to the impact of resistant culture against the anti-smoking social norms of the low income community in which smoking is one of their common and natural cultural phenomenon. For the lower income smokers who belong to the community where smoking is normalized and even encouraged (Thompson et al., 2007), the anti-smoking campaigns that emphasize the social stigmatization of smokers and smoking would be considerably ineffective. Therefore, the exposure to such stigmatizing tobacco control campaigns would be less likely to change their positive perception of smoking behavior because such derogating campaign messages are contradictory to what they have experienced within their community. In this regard, it is very unlikely for the low-income smokers to perceive the higher levels of stigma toward smokers and smoking behavior when they were shown the anti-smoking campaigns that actively derogate smokers.

Lastly, this thesis only tested the short-term effect of one single exposure to the stigmatizing PSA. As a result, it is possible that smokers' personal beliefs on social stigmatization of smoking behavior did not change because such beliefs tend to be ingrained and are less likely to be affected immediately after a single exposure to the derogating campaign messages. However, such insignificant main effect of exposure to the stigmatizing PSA on the perception of smoker-related stigma does not necessarily imply that the stigmatizing PSAs will not influence smokers' perception of stigma after the repeated and prolonged exposure to the same campaign messages.



Third, this thesis found that the stigmatizing PSA inadvertently decreased shame on their smoking behavior, which in turn decreased their cessation intentions, particularly for smokers with the lower income and less self-efficacy. However, inconsistent with the findings from earlier studies that the smoker-related stigma induced various negative emotions (i.e., shame, guilt, anxiety, fear) among smokers (Chapple et al., 2004; Fortenberry et al., 2002; Greaves et al., 2010; Halting et al., 2011; Hammond et al., 2006; Kemeny et al., 2004; Pachankis, 2007; Sorenson et al., 2002; Stead et al., 2001), this thesis found that shame was the only negative emotion that mediated the impact of the stigmatizing PSA on cessation intentions among the lower income smokers with less self-efficacy.

Plausible answers for why the results provided the mere support for the mediating role of shame but not other emotions might begin from understanding the characteristic differences among the negative emotions – shame versus guilt, anxiety over social-image loss, and fear of social exclusion. For instance, both shame and guilt can occur as a result of experiencing social stigma (Lindsay-Hartz, 1984). However, they have several distinctive features, such that shame centers more on *the self*, whereas guilt focuses on interaction with *other people* (Fedewa et al., 2005). To be specific, shame is a narcissistic feeling that occurs as a result of transgression from one's positive ideals of the self (Lindsay-Hartz, 1984; Lutwak & Ferrari, 1996; Tangney & Dearing, 2002). It conjures up several negative feelings concentrating on *the self*, such as self-contempt, which consequently motivates oneself to minimize such negative feelings by quitting their delinquent behavior (Lindsay-Hartz, 1984). Guilt, on the other hand, occurs when a wrongdoer causes harm to *other people* through violation of social norms (e.g., causing

health-related harms to others through second-hand smoke) and such violation of social standards urges oneself to correct the mistake by taking responsibility for what one should have done (e.g., cessation of smoking cigarettes; Lindsay-Hartz, 1984; Lutwak & Ferrari, 1996). Similar to guilt, anxiety over social-image loss and fear of social exclusion occur via social interaction with others rather than through concentration on the self (Pachankis, 2007). Simply put, the negative emotions examined in this study other than shame are the psychological reactions that are evoked when smokers experience the negative treatment from *other* non-smoking *individuals* because their smoking behavior goes against the prevalent anti-smoking social norms.

Then, to better explain why such narcissistic emotion was ultimately translated into the decline in cessation intentions, not other negative emotions, it might be of importance to understand how the low-income smokers consider the smoking behavior itself. The resistant culture against the anti-smoking atmosphere within the low-income population that encourages smoking has considered smoking as providing the disadvantaged smokers with an opportunity to relive stress from their underprivileged life backgrounds (Stanton, Mahalski, McGee, & Silva, 1993; Thompson et al., 2007). In particular, for the low-income smoking population, smoking is a *personal* behavior that pleases smokers *themselves* (Stanton et al., 1993) and thus the self takes their own discretion of quitting it or not (Graham, 2012). Therefore, their violation of the prevalent anti-smoking social norms and/or social responsibility for the secondary harms toward the non-smoking others were not their primary concern at all. In this regard, it might be obvious for the low-income smokers to perceive the lower levels of *shame* as well as other negative emotions (i.e., guilt, anxiety over the social image loss, fear of social

exclusion), but the very ultimate decision to abstain from smoking or not is at the low-income smokers' *personal discretion* and it would be totally fine for them not to quit it because smoking is anyhow a natural and common behavior within their community. Overall, they considered smoking as the *personal* behavior that *the self* decides to adopt or quit and thus the decreased feeling of shame that centers on smokers themselves was solely translated into the decline in cessation intentions.

Lastly, when the simple moderating effect of smokers' perceived self-efficacy on the relationship between exposure to the stigmatizing PSA and cessation intentions was tested, such effect was not statistically significant. In others words, the effect of the stigmatizing campaign on cessation intentions did not vary depending upon participants' confidence in their ability to quit smoking. At first sight, such insignificant result seemed to indicate that self-efficacy was not a significant moderator in the relationship between exposure to the stigmatizing PSA and the quitting intentions. However, when both smokers' income and self-efficacy as moderators were concurrently entered into the regression model that estimated the impact of the stigmatizing PSA on cessation intentions, the effect of the stigmatizing PSA on cessation intentions through shame was statistically different by smokers' income levels as well as the perceived self-efficacy. In specific, for smokers with lower levels of income and self-efficacy, the stigmatizing campaign made smokers less likely to quit smoking through the decrease in the feeling of shame. The observed significant moderated mediation effect suggested that the effect of the stigmatizing campaign would remarkably differ depending upon not only smokers' income, but also their perceptions of self-efficacy. Hence, self-efficacy can also help explain the disparate impact of the stigmatizing campaigns on the quitting intentions. In

sum, the findings of this thesis implied that promotion of smoker-related stigma in tobacco control campaigns may backfire on smokers with the least financial ability and self-efficacy in complete cessation of smoking, which might have contributed to the growing gap in cessation rates between the higher and lower SES smokers.

## **Chapter 6**

### **Conclusion**

Like all studies, this study has its strengths and limitations that require further consideration. Beginning with the strengths, the experimental design allowed this thesis to argue that exposure to the stigmatizing campaigns caused the decline in shameful feeling among smokers with lower income and such decreased perception of stigma reduced their ultimate cessation intentions, particularly among the low-income smokers who also have the lower levels of self-efficacy in successful cessation of smoking.

Turning to the limitations, this thesis employed smokers' annual income as a measure of SES instead of education due to the lack of variance in the sample distribution of smokers' education levels. Although some studies have indicated that individuals' income is a stronger predictor of health-related behavior change than education (Adler & Newman, 2002; Kennedy et al., 1998; Stronks et al., 1997), it does not necessarily mean that the negative impact of the stigmatizing PSA would not be found if the same model was tested using a sample with more diverse educational backgrounds. For instance, the inequalities in cessation rates might explain when the model is tested using smokers' education levels as a moderator (Mariolis et al., 2006; Pierce, Fiore, Novotny, Hatziandreu, & Davis, 1989). Therefore, future research should also consider the potential role played by smokers' education in explaining the widening gap in cessation rates between higher or lower SES smokers. Furthermore, given that smoking behavior may be a result of structural forces in society that considerably influence one's life, such as the socioeconomic status of various occupations (Sorenson et al., 2002), future research might consider how smokers' professions (e.g., white-collar vs. blue-collar workers) may moderate the effect of the stigmatizing campaigns on cessation intentions.

This thesis only measured the short-term impact of watching a stigmatizing (vs. control) PSA on smokers' cessation intentions, which might have explained the insignificant main effect of the stigmatizing PSA on the perception of stigma. In reality, anti-smoking campaign videos are broadcasted for at least several months. It is likely that smokers will watch a stigmatizing PSA more than once before a campaign period ends. Thus, future research might benefit from showing the campaigns messages to smokers repeatedly over an extended period of time in order to assess the effect of stigmatizing campaigns on perceptions of stigma.

Given the limited financial resources to fund this thesis, a relatively small sample ( $n = 111$ ) was used for the experiment. Use of the relatively small-size sample raises the concern over the low statistical power and the commitment of Type II error that might have led to biased interpretations of the results. Although previous research suggested that the use of bias-corrected bootstrap confidence intervals to estimate the significance of effects might mitigate the bias and the skewness of the small-sample distribution (Kilian, 1998), future research better consider using a larger sample to increase statistical power and reduce the risk committing Type II errors while interpreting the effects of anti-smoking campaigns.

Despite these limitations, the findings of this thesis have a number of implications. First of all, this thesis provided the direct evidence showing the causal impact of stigmatizing campaigns on cessation intentions. There have been many qualitative studies arguing that promotion of smoker-related stigma among the socioeconomically disadvantaged smokers is very likely to cause "dual-stigmatization" (Thompson et al., 2007, p. 508) because these smokers are the vulnerable population in

our society “with (the) least ability and/or willingness to quit (smoking)” (Bell et al., 2010, p. 797). Therefore, the stigmatization strategies seem to have the higher possibility to fail in the socioeconomically disadvantaged smoker population within which cigarette consumption is normalized and even encouraged (Thompson et al., 2007) since the disadvantaged smokers do not think that smoking is a shameful action that should be abandoned (Thompson et al., 2009). For these reasons, the qualitative researchers have maintained that the de-normalization tactics might inadvertently discourage the low SES smokers from quitting smoking. However, such argument has never been empirically tested using an experiment. Hence, this study is the first study that provides the direct evidence showing the boomeranging effect of the stigmatizing campaigns that inhibit the willingness to quit smoking among the socioeconomically disadvantaged smokers.

Second, the findings of this thesis corroborate the argument that anti-smoking campaigns highlighting smoker-related stigma might elicit the different levels of cessation intentions as a function of smokers’ income levels as well as self-efficacy. To be specific, the results of this experiment provided the support for the argument that the stigmatizing campaigns made smokers in the lower SES with less self-efficacy unwilling to quit smoking than did the neutral campaigns without any stigmatizing cues. Moreover, the observation that shame mediated the negative impact of the stigmatizing PSA on cessation intentions lends support for the notion that the stigmatizing tobacco control campaigns would decrease the shameful feeling on smoking behavior among the low SES smokers, which in turn lower their cessation intentions, particularly when they have the lower levels of self-confidence in complete abstinence from smoking.

Beyond such strengths, the findings of this thesis provide practical implications for developing a better tobacco control intervention. First, although that the overall size of smoking population has declined as a part of the nationwide efforts through anti-smoking campaigns, the lower income smokers still accounts for the vast majority of smokers in the country (Bayer & Stuber, 2006; Killoran et al., 2006). Since the results of this thesis showed that the stigmatizing anti-smoking campaigns have contributed to widening the inequalities in cessation rates between the higher and lower SES smokers, future anti-tobacco campaigns should reconsider the implementation of smoker-related stigma. Second, in addition to the use of social stigmatization of smokers, the findings of this thesis point to the needs for better understanding the role of social class in predicting the impact of anti-smoking campaigns. In particular, considering the unique cultural difference in attitudes toward smokers and smoking behaviors were considerably different as the qualitative researchers had found and such differential perceptions of smoking behavior have given rise to producing the gap in cessation rates according to smokers' social status. Therefore, the influence of anti-tobacco campaigns needs to be taken into account at the early stage of developing the intervention program so that smokers can be better motivated through campaign messages that are tailored to their social status. Lastly, given that viewers of the stigmatizing tobacco control campaigns include not only to smokers, but also to non-smokers, the possible impact of the stigmatizing PSA on the non-smoking viewers needs to be considered when designing the future anti-smoking campaigns. For instance, the stigmatizing anti-tobacco campaign message might further strengthen the non-smoking individuals' attitudes toward smokers. In specific, since the majority of smokers in the country belong to the lower SES with the



least financial ability (Bell et al., 2010), the stigmatizing campaigns might lead the non-smoking viewers to dual-stigmatize (Thompson et al., 2007) the low-income smokers, not just because of their smoking status, but because of the lower SES. Therefore, many smokers who are also socioeconomically disadvantaged in our society are likely to experience the intensified stigmatization as a result of the de-normalizing campaigns. Therefore, campaign designers should keep in mind that their stigmatizing message would influence the larger population that includes both smokers and non-smokers and thus the campaign effect should be carefully predicted not to reinforce the extant stigma imposed upon the smokers in our society.

Taken together, this thesis indicates that public campaign strategies that endorse the stigmatization of smokers and smoking behavior need to be reconsidered; otherwise smokers with lower SES and self-efficacy might be left at a greater risk of harms from continued smoking. In this regard, the findings of this thesis suggest that the imperative needs to conduct more research to help develop a safer anti-smoking PSA to better motivate smokers to quit smoking with minimal adverse effects.

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## **Appendix**

### **Measures**

#### ***Smoking status***

Are you a regular smoker who smokes on a daily basis?

- A. Yes
- B. No – proceed to the end of survey

#### ***Nicotine dependence***

*\* Asked only if participants chose A. YES to the question above.*  
How many cigarettes do you smoke in a day?

- A. 1 – 4
- B. 5 – 9
- C. 10 – 14
- D. 15 – 19
- E. 20 – 24
- F. 25 or more

#### ***Self-efficacy in quitting smoking***

Please tell us to what extent you agree or disagree with each of the following statements. (measured on 5-point agree-disagree scales with 1 indicating “completely disagree” and 5 “completely agree”)

- A. I can always quit smoking if I try hard enough.
- B. It is easy for me to quit smoking successfully if I plan to do so.
- C. I have enough skills to quit smoking.
- D. I know how to quit smoking very well.
- E. I can quit smoking if I invest the necessary efforts.
- F. I can easily quit smoking because I can rely on my enough skills and abilities for cessation.
- G. If I decide to quit smoking, I can easily think of several ways of doing so solutions.

#### ***Previous attempts to quit smoking***

Have you ever made a serious attempt to quit smoking?

- A. Yes
- B. No

*\* Asked only if participants chose A. YES to the question above.*

How many times have you made a serious attempt to quit smoking? Please type in the number of your attempts.

\_\_\_\_\_

### ***Demographics***

What is your gender?

- A. Male
- B. Female

How old are you? \_\_\_\_\_ (Type your age in a number, for example, 32)

What is your race?

- A. White or Caucasian
- B. Black or African American
- C. Hispanic
- D. Asian or Pacific Islander
- E. Others

What is the highest degree or level of school you completed? If currently enrolled, please indicate your highest degree received.

- A. No schooling completed
- B. Nursery school to 8<sup>th</sup> grade
- C. Some high school or no diploma
- D. High school graduate, diploma or GED
- E. Some college credits or no degree
- F. Trade/technical/vocational training
- G. Associate degree
- H. Bachelor's degree
- I. Master's/professional/doctorate degree

What is your total household income?

- A. Less than \$25,000
- B. \$25,000 - \$39,999
- C. \$40,000 - \$49,999
- D. \$50,000 - \$74,999
- E. \$75,000 - \$99,999
- F. \$100,000 or more

### ***Smoker-related stigma***

Please tell us to what extent you agree or disagree with each of the following statements.

(measured on 5-point agree-disagree scales with 1 indicating “completely disagree” and 5 “completely agree”)

- A. I feel uncomfortable being negatively seen because I am a smoker.
- B. People tend to treat me bad because I am a smoker.
- C. People tend to devalue or look down on me because I am a smoker.
- D. People tend to believe that smoking is a sign of socioeconomic failure.
- E. Others think that I cannot quit smoking because I have a weak mind and will.
- F. Being a smoker makes me feel like I’m a bad person.
- G. Being a smoker makes me feel unclean.
- H. Most people believe a smoker is dirty.
- I. Most people think a smoker is disgusting.
- J. I worry that people may negatively judge me once they know I smoke.
- K. I worry about people discriminating against me because I smoke.
- L. I feel like I am sometimes treated like outcasts because I smoke.

### ***Shame***

Please tell us to what extent you agree or disagree with each of the following statements.  
(measured on 5-point agree-disagree scales with 1 indicating “completely disagree” and 5 “completely agree”)

- A. I feel I need to keep my smoking behavior a secret.
- B. I feel ashamed that I am a smoker.
- C. I feel embarrassed when I tell people that I am a smoker.
- D. I feel inferior or small to others who do not smoke.
- E. I feel humiliated when people frown upon the smell of tobacco after I smoke.

### ***Guilt***

Please tell us to what extent you agree or disagree with each of the following statements.  
(measured on 5-point agree-disagree scales with 1 indicating “completely disagree” and 5 “completely agree”)

- A. I feel like apologizing for not having quit smoking.
- B. I feel like I have made many mistakes about my smoking behavior.
- C. A guilty conscience as a smoker bothers me.
- D. I feel as if I have had done something wrong about my smoking behavior.
- E. I feel as if I would be deeply punished by my smoking behavior.
- F. I feel very regretful about my smoking behavior.

### ***Anxiety over social image loss***

Please tell us to what extent you agree or disagree with each of the following statements.  
(measured on 5-point agree-disagree scales with 1 indicating “completely disagree” and 5 “completely agree”)

- A. I am worried if smoking spoils my social image.
- B. I become tense if important people ask me whether I am a smoker.
- C. I try to avoid smoking when I am with important people.
- D. I feel nervous if important people judge me negatively once they know I am a smoker.
- E. I feel anxious if important people are disappointed once they know I am a smoker.
- F. I feel anxious if other people have a negative image of me once they know I am a smoker.
- G. Other people's negative images of smokers strongly bother me.
- H. I am worried about whether I am seen negatively to others due to my smoking behavior.
- I. I am afraid of strong disapproval by others because of my smoking behavior.

### ***Fear of social exclusion***

Please tell us to what extent you agree or disagree with each of the following statements. (measured on 5-point agree-disagree scales with 1 indicating "completely disagree" and 5 "completely agree")

- A. I am afraid of being rejected from others because of my smoking behavior.
- B. I am scared of being excluded from others because of my smoking behavior.
- C. I am fearful of being left out by others because of my smoking behavior.
- D. I am afraid of getting close to non-smokers because of my smoking behavior.
- E. I am scared of losing companionship because of my smoking behavior.
- F. I am fearful of being isolated from other because of my smoking behavior.

### ***Cessation intentions***

Please tell us to what extent you are likely to quit smoking or not through each of the following statements. (measured on 5-point likely-unlikely scales with 1 indicating "very unlikely" and 5 "very likely")

*\* If participants chose 5=very likely to this question, proceeded to **Manipulation checks**.*

How likely are you going to quit smoking in the near future?

(1=very unlikely; 2=somewhat unlikely; 3=neither likely nor unlikely; 4=somewhat likely; 5=very likely)

*\* If participants chose 5=very likely to this question, proceeded to **Manipulation checks**.*

How likely are you going to quit smoking in the next 6 months?

(1=very unlikely; 5=very likely)

*\* If participants chose 5=very likely to this question, proceeded to **Manipulation checks**.*

How likely are you going to quit smoking in the next 3 months?

(1=very unlikely; 5=very likely)



*\* If participants chose 5=very likely to this question, proceeded to **Manipulation checks**.  
How likely are you going to quit smoking in the next 30 days?  
(1=very unlikely; 5=very likely)*

***Manipulation checks***

Please choose a logo that you saw at the end of the campaign video.

- A. Smoke Free Alabama
- B. TobaccoFreeCA.com
- C. Don't remember

To what extent did the video describe smoker(s) as a social outcast or pariah?  
(1 = "not at all" and 5 = "extremely")

To what extent did the video suggest that smokers should be isolated from non-smokers?  
(1 = "not at all" and 5 = "extremely")