

Title: Self-Affirmation in the Context of Stigma-Induced Identity Threat Among Smokers

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Description: The purpose of this study is to examine if self-affirmation attenuates the effects of cigarette smoking stigmatization on smoking risk perceptions, pro-smoking beliefs, and intentions to change smoking behavior. The study, including recruitment, pre-screening, the survey, and remuneration, will be conducted on-line. Amazon Mechanical Turk (MTurk), an on-line crowdsourcing program, will be responsible for recruitment, pre-screening, and providing participant remuneration using unique alphanumeric codes. Amazon MTurk will recruit 1,100 US adult smokers. Although the study will be deployed through Amazon MTurk, the survey will be hosted on SurveyGizmo, an on-line survey software platform. No personal identifiers will be collected and neither Amazon MTurk nor SurveyGizmo will have access to personal identifiers as a part of this process. Individual participants' responses will be accessible to only the National Cancer Institute (NCI) investigators to enable data analysis.

Narrative Template for Educational, Survey or Interview Research

Please answer the questions below and upload this document as a MS Word attachment into the web-based system under 'Project Description'. Be sure to discuss in detail the role of the NIH research team and every other entity who will assist or collaborate in the research, including companies with whom you are subcontracting. Collaborators or subcontractors, who are not NIH employees and who are conducting the research off-site, will commonly need IRB approval or an exemption from their own IRB of record.

Remember to also upload a copy of any recruitment scripts, screening questions, survey, interview, or focus group questions or scripts as well as the consent language that will be used for your project into the system. Note that the functionality in the system only allows one document per upload. If you have more than three documents to upload into one section, you may combine them into a single PDF and upload that instead.

1. What is the research question or purpose of this research activity?

When exposed to messages suggesting one is volitionally engaging in a harmful behavior (e.g., health communications about the harms of smoking), individuals often respond defensively. One reason for this defensiveness is the need to maintain perceptions of self-integrity and competence; such messages can threaten these perceptions, and thus individuals are motivated to derogate the message to restore their self-integrity (Fein & Spencer, 1997). Indeed, self-affirmation theory posits that people feel compelled to maintain their global sense of self (Steele, 1988). An emerging body of research has shown that when people have the opportunity to affirm on other aspects of the self (such as values they believe to be important and upheld in daily life), they are better able to withstand threats to the self, and may subsequently be less defensive against threats in a specific domain, such as threatening health messages (Sherman & Cohen, 2006). Furthermore, effective self-affirmation interventions have

been shown to buffer the deleterious consequences of stereotype threat (Cohen, Garcia, Purdie-Vaughns, Apfel, & Brzustoski, 2009; Sherman et al., 2013), a circumstantial situation in which people worry they will fulfill or confirm stereotypes surrounding their social group, thereby increasing self-doubt, inhibiting cognitive functioning, and impairing academic performance (Steele & Aronson, 1995). Engaging in self-affirmation has been shown to bolster self-resources, increase open-mindedness, and reduce the degree of perceived threat to the self (Sherman, 2013).

A growing body of research has demonstrated that self-affirmation bears important implications for promoting smoking cessation: when smokers are offered the opportunity to self-affirm, they have been shown to be more receptive to anti-smoking messages and more likely to plan to quit smoking—and in some instances, actually quit smoking—as a result (e.g., Crocker, Niiya, & Mischkowski, 2008; DiBello, Neighbors, & Ammar, 2015; Dillard, McCaul, & Magnan, 2005; Harris, Mayle, Mabbott, & Napper, 2007). Aside from inconclusive results derived from a pilot test trial exploring the implications of Smokefree TXT, a self-affirmation text-messaging program (Taber, Klein, Ferrer, Augustson, & Patrick, 2016), for smoking cessation, there is a dearth of research exploring the intersection between smoking behaviors and self-affirmation beyond defensive responses to cigarette smoking warning graphics.

Stigmatization is especially relevant to smokers and tobacco control efforts, as over the course of the past century, views on smoking have shifted extensively, resulting in the conversion of smoking to a moralized (Rozin & Singh, 1999) and stigmatized (Stuber, Galea, & Link, 2008) social status. Research shows that efforts to stigmatize smokers periodically enacted in anti-tobacco campaigns have been predicated on the notion that stigmatization promotes smoking cessation, but support for this argument is divided (e.g., Bayer, 2008; cf., Bell, Salmon, Bowers, Bell, & McCullough, 2010). Specifically, although some research has shown that stigma has been associated with increased smoking cessation intentions (e.g., Kim & Shanahan, 2003; Stuber, Galea, & Link, 2009), other research has demonstrated that stigma results in somewhat counterintuitive predilections towards continuing to smoke; cigarette smoking stigma has been linked to people concealing their smoking status from health care providers, as well as continued smoking (e.g., Chapman & Freeman, 2008; Evans-Polce, Castaldelli-Maia, Schomerus, & Evans-Lacko, 2015; Stuber & Galea, 2009). Previous research suggests that self-affirmation is an efficacious psychological threat-management coping response (Emanuel, Howell, Taber, Ferrer, Klein, & Harris, 2018; Sherman & Cohen, 2006), which stipulates that self-affirmation will likely moderate relationship between exposure to stigma-relevant cues (self-threats) and stress responses. However, despite the potential for self-affirmation to attenuate stereotype threat, which has a component of stigma, no known research examines self-affirmation in the context of stigma as identity (stereotype) threat, and, smoking stigma.

The model of stigma-induced identity threat (Major & O'Brien, 2005) offers an informative framework to elucidate the consequences of stigmatizing smokers. The model proposes that

identity threat occurs when people worry that they will be ostracized, repudiated, or stereotyped due to the devalued status of their social identity. Applied to smoking, the model posits that stigma-relevant situational cues (self-threats related to smoking), personal characteristics (individual attributes that relate to situation appraisal; e.g., smoking self-concept), and collective representations (shared meanings related to deprecated statuses in society; e.g., culture, socioeconomic status) converge to predict volitional (intentional behaviors; e.g., smoking cessation) and non-volitional responses to stigma (involuntary, visceral reactions; e.g., mean arterial pressure, cognitive depletion).

The model of stigma-induced identity threat has been previously applied to examine differential responses to stigma-relevant cues among Danish and American smokers who possess varying strengths of smoking self-concept (a measure of smoker identity). Results indicated that regardless of culture, stigmatization was associated with emotional, attitudinal, and cognitive reactions that were counterproductive to eventual smoking cessation (Helweg-Larsen, Sorgen, & Pisinger, forthcoming 2019), but revealed somewhat inconsistent response patterns related to interactions between culture, stigma, and smoking self-concept, which may be illuminated by examining other personal characteristics within the context of this model. To date, no research has examined self-affirmation using the model of stigma-induced identity threat, much less among smokers. Research examining how daily cigarette consumption (a question within the Fagerstrom Test for Nicotine Dependence), and smoking self-concept moderate the effects of self-affirmation on responses to cigarette warning labels, found that high daily cigarette consumption and smoking self-concept were associated with defensive responses (Dillard et al., 2005). Smokers who have recently attempted to quit and current smokers (who have not recently attempted to quit) perceive their risk of developing smoking-related diseases as different (McCoy, Gibbons, Reis, Gerrard, Luus, & Sufka, 1992). Furthermore, a growing body of evidence suggests that the presence of spontaneous self-affirmation, individual differences in the tendency to self-affirm, produces similar responses invoked by self-affirmations (Pietersma & Dijkstra, 2011), but more research is needed to understand how spontaneous self-affirmation may differ from self-affirmations.

The current project seeks to apply the model of stigma-induced identity threat to explicate how self-affirmation and stigma may interact to shape smokers' perceived risk of developing smoking-related diseases, pro-smoking beliefs, and intentions to change smoking behavior in an empirical paradigm, while controlling for nicotine dependence, daily cigarette consumption, quit attempts, spontaneous self-affirmation, and smoking self-concept.

The purpose of this study is to examine if self-affirmation attenuates the effects of cigarette smoking stigmatization on smoking risk perceptions, pro-smoking beliefs, and intentions to change smoking behavior. Our hypotheses are as follows:

Hypothesis 1: Self-affirmation and smoking stigma will interact, such that among participants in the stigmatizing condition, those who self-affirm will rate their perceived risk of developing smoking-related diseases as higher.

Hypothesis 2: Self-affirmation and smoking stigma will interact, such that among participants in the stigmatizing condition, those who self-affirm will endorse fewer pro-smoking beliefs.

Hypothesis 3: Self-affirmation and smoking stigma will interact, such that among participants in the stigmatizing condition, those who self-affirm will report greater intentions to change smoking behavior.

2. Describe the target population, including the number of planned participants. Subject selection must be equitable or otherwise justified here. (See *NIH HRPP SOP 6, 6.12*.)

We propose collecting data from 1,100 US current smokers over the age of 18. This estimate was calculated using G*Power (version 3.1.9.2), an open-source statistical power analysis program, in which we set the effect size at $f^2 = .10$ (between small and medium, according to Cohen, 1988), power to .80, alpha to .05, and found that we needed 1,100 participants total. The recruitment platform, Amazon Mechanical Turk (MTurk) is a participant pool comprised of individuals over the age of 18. Due to privacy concerns, Amazon MTurk is not able to disclose the number of participants within their pool who fulfill our study criteria. However, we expect that collecting data from the target population will be feasible given that Amazon MTurk has a predefined cohort of smokers, laboratories sample 7,300 Workers on average (Stewart et al. 2015), and researchers estimate that there are 250,000 US Workers (Bauhoff, Montero, & Scharf, 2017). No other inclusion criteria will be imposed. Amazon MTurk charges an overall fee of 40.0% and a \$0.30 fee per assignment to pre-screen for smoker status. We would like to pay Workers \$6.50 an hour and estimate it will take them 20 min to complete the survey, which equates to \$2.17 per assignment, for a total of \$3,803.10 for 1,100 participants.

3. Which entity(ies) will conduct recruitment? How will it be conducted (telephone, email, regular mail, on-line, in person or some combination of these)? If one entity will simply send out a link through a mass mailing, state that. Will that entity receive and/or maintain any personal identifiers as part of this process? If so, what type of identifiers? (See the list of possible identifiers is included in *NIH HRPP SOP 5, Appendix 2*.)

Participants will be recruited on-line using Amazon MTurk, an on-line crowdsourcing platform. Amazon MTurk assigns Worker IDs, which are unique 14-character alphanumeric codes unrelated to the participants' identities, to the participants within their pool. Amazon MTurk has access to personal identifiers (e.g., name, physical address) but these will not be accessible to the NCI researchers.

4. If the project involves any pre-screening for eligibility, which entity(ies) will conduct pre-screening? How will it be conducted specifically (telephone, email, regular mail, on-line, in person or some combination of these)? Will that entity receive and/or maintain any personal identifiers as part of this process? If so, what type of identifiers?

Amazon MTurk will conduct pre-screening on-line. Amazon MTurk allows service requesters to select from a list of “Premium Qualifications,” which are predefined cohorts of participants based on certain criteria, including smoker status. We have indicated that eligible participants are adults who consider themselves cigarette smokers and will limit the study pool to those who have US IP addresses.

5. What type of research procedures will be used? For example, will this project involve surveys, interviews, focus groups, educational tests, etc.? How will data collection be conducted (telephone, email, regular mail, on-line, in person or some combination of these)? If not through a website, which entity(ies) will be conducting the various activities? *If different entities will conduct different parts of the data collection, be clear about which entity will conduct what part.* Will that entity receive and/or maintain any personal identifiers as part of this process?

Westat, a social science research firm, has set up and funded an MTurk account for NCI researchers’ use. NCI researchers will post an external Human Intelligence Task (HIT) on Amazon MTurk, described as a survey on smoking attitudes and behaviors, which will redirect eligible participants to study task on SurveyGizmo, an on-line survey software platform. This project will involve survey procedures and data that will be collected on-line via SurveyGizmo. SurveyGizmo will not collect or maintain personal identifiers as a part of the process. At the end of the survey, respondents will be instructed to enter their Worker ID, and after doing so, they will be provided with a 10-digit confirmation code (YQP0ZTC87C), which they will enter into Amazon MTurk. We will approve submitted work if the respondent’s Worker ID matches and they provided the correct 10-digit confirmation code. Once approved, Amazon MTurk will automatically transfer \$2.17 to each Worker’s earning balance. The \$2.17 does not include the \$0.30 fee for using the smoker premium qualification or the 40.0% MTurk service fee.

Participants who meet pre-screening criteria and click on the link to the external HIT will be provided with informed consent information in addition to the NCI principal investigator’s contact information in SurveyGizmo. Participants will be asked to indicate (electronic) consent to proceed to the study.

Participants will be instructed to complete the pre-activity survey containing questions on, smoking characteristics, and spontaneous self-affirmation. SurveyGizmo will randomize eligible participants to the four study conditions. The stigma and self-affirmation activities will be embedded in the on-line survey itself. There will be four different versions of the pre-activity survey: 1) stigmatizing condition, self-affirmation condition; 2) stigmatizing condition, no-affirmation condition; 3) non-stigmatizing condition, self-affirmation condition; and 4) non-stigmatizing condition, no-affirmation condition.

Upon completion of the pre-activity survey, based on self-affirmation procedures employed in previous research (e.g., Fein & Spencer, 1997; Sherman, Nelson, & Steele, 2000), participants will be instructed to rank 11 characteristics and values from most to least important.

Participants will be randomly assigned to either a self-affirmation or no-affirmation condition. Those in the self-affirmation condition will be instructed to write a short paragraph about their most important characteristic/value (rank 1), describing why it is personally important and how they use it in daily life. Those in the no-affirmation condition will be instructed to write a short paragraph about their least important characteristic/value (rank 11), describing why it might be important to someone else.

Using procedures and materials designed by Kim, Cao, and Meczkowski (2018), smoking stigma will be prompted by randomly assigning participants to view a stigmatizing ([stigmatizing condition](#)) or non-stigmatizing ([non-stigmatizing condition](#)) 30-sec anti-smoking public service announcement (PSA) video. Kim et al. (2018) pilot tested four stigmatizing and four control PSAs wherein participants rated the degree to which each PSA depicted smoking as a deviant behavior and suggested that smokers deserved to be socially ostracized. The PSAs that averaged the highest and lowest scores were chosen as the stigmatizing and non-stigmatizing conditions PSAs respectively in Kim et al. (2018) and in the present study.

Participants will be instructed to complete the post-activity survey and respond to questions related to their perceived risk of developing smoking-related diseases (e.g., “What is your chance of getting lung cancer in your lifetime?”, “Imagine that you in the future smoke a pack of cigarettes per day. What is then your chance of getting lung cancer in your lifetime?”; *Not at all likely* to *Extremely likely*), pro-smoking beliefs (e.g., “I enjoy smoking too much to give it up,” “You have got to die of something, so why not enjoy yourself and smoke?”; *Strongly disagree* to *Strongly agree*), intentions to change smoking behavior (e.g., “How likely is it that in the next 6 months you will reduce the number of cigarettes you smoke in a day?”, “How likely is it that in the next 6 months you will seek counselling/support to help you quit smoking?”; *Definitely will not* to *Definitely will*), and demographics (e.g., “What sex were you assigned at birth, on your original birth certificate?”; *Male, Female, Intersex, Other*).

NCI researchers will manage the process of data collection and will respond to participant inquiries via an NIH-designated email account as they arise.

Only answer question #6 if contact information for the NIH staff will be provided to subjects in case they have questions about the research OR if NIH staff will be interacting with subjects for this project; for example:

- a. *to conduct screening or consent;*
- b. *to invite them to participate in the research;*
- c. *to email them a web link to access a survey;*
- d. *to mail a paper copy of a survey; or*
- e. *to collect data via interview/focus group, etc.*

When contact information for NIH staff is being provided, or NIH staff are interacting with potential subjects, you must provide information to subjects that includes certain elements of informed consent for research and upload it in the system. (See “Required Elements of Consent Language” below.)

6. How will consent information be shared (e.g. mailed or emailed to potential subjects before data collection, read aloud to participants over the telephone or in person, or included as part of an on-line instrument, etc.)? Whose contact information will be provided to subjects in case they have questions about the research? (This person should be one of the researchers involved in the project.) If applicable, which entity, will read the consent language aloud? Will the subject sign a hard copy informed consent form (ICF) or provide electronic consent? (Note: Obtaining written or electronic consent is not mandatory for exempt research.) If a signed ICF will be obtained, who will receive the signed forms?

Informed consent information will be provided on-line using SurveyGizmo, which will display the NIH Principal Investigator's contact information, Dr. Annette Kaufman, kaufmana@nih.gov, and ask that participants indicate (electronic) consent to proceed to the survey.

7. Which entity(ies) will have access to the individual subject's responses? Will data or results be shared between entities? Who will share data and what specifically will be shared (e.g. data and/or results; if results, aggregate or individual level)? Will it include identifiers? If so, what type of identifiers will be included? Which entity(ies) will be responsible for analysis of data? Will the results be published or presented in conferences, etc.? Which entity(ies) will be involved in authoring these documents?

If NIH will have access to identifiable data as a part of this project, describe how you will maintain the confidentiality of the data, e.g. *“Confidentiality of data is ensured by good data practices, including, as applicable, locked file cabinets, storage of electronic data on the network that has firewall protection, strong passwords on computer files, and data access only for those involved in the study.” (NIH HRPP SOP 6, Section 6.12).*

Individual participants' responses will be accessible to only NCI investigators to enable data analysis. No outside collaborators will be involved in this project. No personal identifiers are being collected. NCI researchers will report analyses at an aggregate level for publication purposes and potential conference presentations. NCI researchers will be the sole authors of these documents. Within 6 months of study completion, NCI researchers will send the SurveyGizmo survey instrument, data files, and codebook to Westat to retain in a repository.

8. If any collaborators or sub-contractors are involved, do they have IRB approval or an exemption from IRB review for their role in the project? If not, is this in process? *Please*

note, IRB approval may be required, if we determine these individuals to be engaged in human subjects research as part of this project.

To our knowledge, Westat has not sought a determination of “not human subjects research” or an exemption for this project, since they will have no involvement in the research itself and all data will be maintained in a de-identified format.

Required Elements of Consent Language

If your research project must include consent language, according to question #6 above, the language should include the following elements: 1) that the activity is being conducted for research purposes; 2) that participation is voluntary; 3) a description of the procedures involved (e.g. approximate time commitment, number of questions, number of follow ups, etc.), and 4) the name and contact information for one of the researchers. Your project will not be approved unless each of these elements is included as part of the instrument/interview script, recruitment script/email, or as a separate consent document uploaded into the system.

In addition, you should consider addressing the following topics: 1) purpose of the research; 2) description of the subjects being targeted (number and eligibility criteria); 3) any anticipated risks or benefits; 4) methods for withdrawal from the study and whether subject's data will be maintained after withdrawal; 5) whether personal identifiers will be collected or not; 6) if identifiers will be collected, how confidentiality will be ensured (*see examples in question #7 above*); and 7) compensation.

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