Targeting Functions: A New Approach to Anti-Smoking PSAs

THESIS

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Abstract

The primary goal of the current study was to apply previous literature pertaining to attitude functions and the matching hypothesis to anti-smoking persuasion. The study included 219 participants at part 1 and 158 participants at part 2. The sample consisted of undergraduate students recruited from a large mid-west university and included both smokers and non-smokers.

Using PSAs targeting industry attack, weight control, and stress relief, participant survey responses were measured against the no-message control group to determine the effectiveness of “functionally matched” persuasive messages. A series of regression analyses provided several interesting conclusions. Consistent with the matching hypothesis, analyses indicate that women and smokers in general are more likely to believe that smoking will help control their weight. In addition, those who were more concerned with their weight were more motivated to process the weight-targeted PSAs. However, these beliefs were not influenced by exposure to the weight-targeted PSAs.

The failure of this study to yield substantially significant results is believed to be primary due to an insufficient sample size, as well as the method of message delivery. There is some cause to believe that aspects of the matching hypothesis were supported, so further study is necessary in order to determine the effectiveness of functionally matched persuasive messages in health settings.
Dedication

“The voice of parents is the voice of gods, for to their children they are heaven's lieutenants”.

-William Shakespeare

For my family who is the voice of reason on the most difficult days.

Without you, I would not be me.
Acknowledgments

This thesis would not have been possible without the help of my advisor, Dr. David Ewoldsen. Thank you, Dr. Ewoldsen for your dedication, patience, and willingness to share your scholarly genius with me. Your lessons will benefit me for the rest of my life.

I would also like to acknowledge the hard work and expertise contributed by Dr. Janice Raup-Krieger. Thank you, Dr. Raup-Krieger for always supporting me in my academic journey and for continuing to believe in me always.
Vita

June 2005 ............................................. Frontier High School

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2009 to 2011 .............................................. M.A. Health Communication & Social

Influence, The Ohio State University

2009 to 2010 .............................................. Graduate Teaching Associate, School of

Communication, The Ohio State University

Fields of Study

Major Field: Communication
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Chapter 1: Introduction

The effectiveness of anti-smoking advertising is an area within health communication research that has been extensively studied, but with mixed results (Durkin, Biener, & Wakefield, 2009; Farrelly, Niederdeppe, & Yarsevich, 2003; Flynn et al., 1992, 1994; Hopkins et al., 2001; Pechmann, 1997). Previous research has generally shown that anti-smoking campaigns are successful when combined with various other methods of message communication within the campaign such as school campaigns (Jacobson et al., 2001). Comprehensive anti-tobacco campaigns in Massachusetts, Florida, and California exemplify highly successful approaches to tobacco-cessation campaigns, utilizing multiple channels (i.e. television, radio, newspapers, and billboards) simultaneously to gain deeper penetration into public consciousness (Koh, 2002; Sly, Heald, & Ray, 2001; Biener, Harris, & Hamilton, 2000). The effectiveness of individual messages has received less attention and the results of this research have been mixed, though there is reason to believe that messages targeting specific audiences and motivations for smoking may have a higher rate of success (Clary et al., 1998; Sanderson & Cantor, 1995; Snyder & Cantor, 1998).

There is some debate among communication scholars as to the way in which persuasive messages are processed. Some studies have emphasized the depth at which messages are processed, arguing that more readily accessible attitudes result in greater attention to the message, greater and longer lasting attitude change, and greater resistance to counter-persuasion (Petty & Cacioppo, 1986; Petty & Krosnick, 1995). However, more recent persuasion research suggests that while it may indeed be the case that greater attentiveness to the message can result
in greater attitude shift and resistance to counter-persuasion, biased processing of the message may mean that attitude change is in an unintended direction, strengthening previously held attitudes and beliefs (Shen, Monahan, Rhodes, & Roskos-Ewoldsen, 2009). These authors suggest that one means of improving the persuasiveness of health messages is to reduce biased processing, rather than focusing entirely on the depth of processing (Shen et al, 2009).

According to Farrelly, Niederdeppe, and Yarsevich (2002), one of the primary causes for the lack of agreement regarding the effectiveness of various anti-tobacco strategies is the failure to control for the degree that messages are specific to the populations most at risk. They propose that the most successful messages can be created using a theoretical foundation and targeting specific populations. The matching hypothesis indicates that persuasive messages must target the functions a behavior or attitude serves for the individual (Maio & Olson, 2000; Sanderson & Cantor, 1995). For many, the greatest perceived functions of smoking are weight control and stress relief. In order to create the most effective anti-smoking appeals, messages should be constructed that focus on these perceived functions. However, a recent content analysis of anti-smoking public service announcements (PSAs) found that the vast majority of PSAs do not target the most commonly reported perceived functions of smoking which are weight control and stress relief (Rhodes, Roskos-Ewoldsen, Eno, & Monahan, 2009). Despite this vital piece of information, the researchers found that the vast majority of public service announcements pertaining to smoking did not contain messages regarding weight control or stress relief (Rhodes et al, 2009). Based on the matching hypothesis, the current study will seek to show that anti-smoking messages targeting the perceived functions of weight control and stress relief will lead
to a greater attitude change in college students who are specifically concerned with these issues than messages that do not target these functions. Using this “targeted functions” approach may help to begin a new generation of anti-smoking campaigns with a significantly higher success rate than in the past.
Chapter 2: The Functional Approach to Attitudes and Perceived Functions of Smoking

The Functional Approach to Attitudes

The functional approach to persuasion focuses on the purpose a particular attitude or behavior serves for the individual (Clary, Snyder, Ridge, Copeland, Stukas, & Haugen, 1998; Lavine & Snyder, 2000). This perspective produced the matching hypothesis, which proposes that messages targeting the specific function a behavior is believed to fulfill are more effective at instigating attitude change than messages that do not target the functions the behavior serves (Maio & Olson, 2000; Sanderson & Cantor, 1995). A study conducted testing the effectiveness of functionally matched political messages found that messages which matched the person’s function for holding their political attitudes were perceived as more cogent and involving stronger arguments than those persuasive messages that did not match the functions the political attitude served (Maio & Olson, 2000). During the 1980s, DeBono began work on the functions approach to persuasion. Based on his research he proposed that functionally matched messages would not only be more effective, but individuals would also remember them longer than other messages (DeBono, 1987).

Perceived Functions of Smoking

A number of studies from the early to mid-2000s found evidence that adolescents believe smoking cigarettes serve several functions including helping them to control negative affect such as stress, depression, and anger, aid in weight control, and serve a social function of helping them to fit in (Kassel, Stroud, & Paronis, 2003; Wills, Sandy, Yaeger, & Shinar, 2001; Wills, Sandy, Yaeger, 2002; Baker, Brandon, Chassin, 2004; Myers, McCarthy, MacPherson, &
Brown, 2003; Lewis-Esquerre, Rodrique, & Kahler, 2005). These studies help to establish some of the primary functions smoking is perceived to serve. Interestingly, the Kassel et al (2003) work also noted that while many smokers cite controlling and/or reducing depression symptoms as a reason for continuing to smoke, research has found that smokers report noticeably higher levels of depression that non-smokers. Although smokers may hold the perception that it helps deter depression, studies have shown that the relationship between smoking and depression is reciprocal. Meaning, smokers initiate smoking to relieve depression, but in effect, the smoking may increase the likelihood the individual has depressive symptoms (Choi, Patten, Gillin, Kaplan, & Pierce, 1997; Goodman & Capitman, 2000; Windle & Windle, 2001). But the critical point is not whether smoking actually achieves these functions; rather, adolescents are more likely to smoke if they perceive smoking as fulfilling these functions (Rhodes et al., 2009).

A number of studies beginning in the late 1990s specifically studied weight as a factor in smoking initiation and maintenance, particularly among young women. Girls reported more concerns regarding weight than boys, and white females represented the majority of respondents with this concern (Klesges, Elliott & Robinson, 1997). Indeed, over 10% of the regular smokers in this study cited weight control as the reasons for smoking. Likewise, a longitudinal study from 2003 analyzed the importance of perceptions of thinness and the potential initiation of smoking among girls. The researchers found that over the course of a four-year period, the girls who reported the highest levels of concern with weight were four times more likely to initiate smoking (Kassel, 2003).
Despite a fair amount of research concerning stress and smoking (Kassel et al, 2003; Wills et al, 2001; & Wills et al, 2002), PSAs have not targeted this function of smoking. Among others, Kassel et al (2003) established that the perception that smoking relieves stress is actually misleading. Smokers tend to report higher levels of baseline stress than nonsmokers, but nicotine addiction seems to be a contributing factor to this difference. Specifically, although smokers experience some level of “stress relief” following cigarette consumption, they are simply relieving the stress that is onset due to withdrawal symptoms caused by their addiction to nicotine (Kassel, 2003).
Chapter 3: Functionally Matched PSAs and Hypotheses

Based on the matching hypothesis, anti-smoking campaigns that target the specific functions of weight control and stress relief would be more successful with adolescents and young adults than those that do not target these functions. A recent content analysis of 487 anti-smoking Public Service Announcements (PSAs) from 1999-2003 found that the perceived functions of stress relief and weight control were not targeted by any of the 487 anti-smoking PSAs analyzed (Rhodes et al., 2009). Assessing whether or not PSAs that targeted these functions are effective was impossible at the time due to the non-existence of such messages. However, as several studies have shown, both stress and weight control are important perceived functions of the use of cigarettes and other tobacco products in the minds of those who use them (Baker, Brandon, Chassin, 2004; Myers, McCarthy, MacPherson, & Brown, 2003). Several magazine-type PSAs will be specifically created for the purposes of this study. By comparing participants’ baseline responses regarding smoking to responses attained after exposure to PSAs targeting these “functions of smoking,” this study will test the effectiveness of the matching hypothesis for creating anti-smoking messages. The hypotheses to test this are as follows:

H1: Exposure to anti-smoking PSAs targeting the function of weight control will result in more negative attitudes toward smoking than exposure to anti-smoking PSAs that do not target these functions.
H2: Exposure to anti-smoking PSAs targeting the function of stress relief will result in more negative attitudes toward smoking than exposure to anti-smoking PSAs that do not target these functions.

And

H3: Individuals who exhibit a greater sense of concern regarding weight control and stress relief as functions of smoking will show more negative attitudes toward smoking after exposure to anti-smoking PSAs targeting these functions than will people who are not concerned with weight control and stress relief as a function of smoking.
Chapter 4: Methods and Measures

Participants

The respondents for this study consisted of a convenience sample of undergraduate students from a large, Midwest university. Students were canvassed from introductory undergraduate classes and were offered extra credit for participating in the study. A total of 219 students completed part one of the study, while only 158 also completed part two.

Design

There are 4 conditions in the study: control group (no message control), industry attack (message control), stress relief, and weight control. Nine advertisements similar to those that would be found in popular magazines were created solely for the purpose of this study so respondents would never have had the opportunity to view them previously (See Appendix). There were three separate “advertisements” for each group, designed to target a specific type of message. Industry attack was included as a control condition because it is one of the most common PSA themes currently utilized (Rhodes et al., 2009). This control group is included so that participants are exposed to a PSA that will make smoking salient but not address the functions served by smoking to control for any demand effects related to the critical ads. Stress relief, and weight control are the functions we sought to analyze for creating greatest attitude shift. The control group is a no message control.

Procedures

Students who volunteered to participate in the study were asked to register online and complete a questionnaire when they signed up for the study so that they completed the
questionnaire several days prior to the actual laboratory session. The questionnaire asked questions that were meant to assess the individual’s general health habits and beliefs, including smoking, alcohol, and drug use. Respondents were asked how often they smoke along with questions to assess their attitudes toward smoking. Questions were also integrated into the survey that assessed the respondent’s level of concern with weight control and stress relief as functions of smoking. These questions helped to establish a baseline measure of concern for these issues. Other questions regarding alcohol and drug use were interspersed into the questionnaire in order to mask the focus of the study on smoking behavior. In order to complete the second half of the study, participants made lab appointments, during which they were randomly selected into one of the four conditions. Those who were in the stress relief, weight control, and industry attack conditions viewed three anti-smoking PSAs with messages focusing on their assigned condition. After viewing these advertisements respondents completed a posttest questionnaire that again assessed their attitudes toward smoking as well as perceptions of the advertisements. Individuals in the control condition did not view any anti-smoking messages and were instead deferred directly to a posttest survey reassessing their attitudes toward smoking. At the conclusion of the posttest, respondents were thanked for their participation and asked to exit the lab.

Measures

Functions of Smoking. Functions of smoking were measured based on multiple questions regarding weight and stress. Using a 10-point scale (0 = completely unlikely, 9 = completely likely), participants responded to questions assessing the degree to which they felt smoking
fulfilled a specific purpose for them, such as preventing overeating or dealing with anger or stress. The subscales included beliefs about weight control (5 items), stress management (7 items), pleasure of smoking (4 items), and the health effects of smoking (4 items). Sample items include such statements as, “Cigarettes help me reduce or handle tension,” and “Cigarettes keep me from eating more than I should”. The reliabilities for the stress management subscale were the same for both the pretest and posttest ($\alpha = .98$). The reliabilities for the weight control subscale were high and almost identical in the pretest ($\alpha = .95$) and the posttest ($\alpha = .96$). Composite measures were created by averaging across the items for each subscale.

**Smoking Intentions.** Smoking intentions were measured both before and after exposure to the anti-smoking PSAs to determine the effectiveness of the messages on long-term behavior. Smoking intentions were measured with two items that involved self-assessments of how likely participants thought it was that they would be smoking cigarettes in 6 months, and how likely that they would be smoking cigarettes at the age of 40. The two scales significantly correlated in both the pre- and posttest responses ($r (217) = .66$ and $r (157)= .77, p = .01$). The two items were averaged to form a measure of smoking intentions.

**Concern about weight.** Concern about weight was assessed using three items (e.g., “dieting and exercise are not enough to control my weight”). In addition, participants were explicitly asked if they were concerned with their weight, as well as recent dieting activity. The scale had acceptable reliability ($\alpha = .72$). A composite measure of concern about weight was calculated by averaging across the three items.
Concern about stress. Concern about stress was measured using two items. The first item asked participants to indicate on a 9-point scale the level to which participants reported experiencing stress every day. The second items concerned how much participants tried to control their stress (see appendix). While the correlation between the two items was significant (r (155) = .27, p <.01), the correlation was low enough that the two items were not combined into a single scale.

Smoking Status. Participants indicated smoking status through a series of four questions pertaining to both lifetime and recent smoking behaviors. Questionnaire items assessing smoking status included statements such as, “Have you ever tried or experiments with cigarette smoking, even a few puffs?” and “Have you smoked a cigarette any time in the last 30 days?” Although just over half of participants (53.3%) indicated that they had at some point experimented with cigarettes, only 25% reported smoking a cigarette in the last 30 days. Of those who reported smoking in the last 30 days, 75.7% had smoked less than one cigarette per day, 16.2% had smoked 1-5 per day, 5.4% had smoked a half-pack per day, and only 2.7% smoked a pack per day.

Perceptions of Message Bias. Perceptions of message bias were measured using 7 items on a 9-point scale ranging from 0 (strongly disagree) to 8 (strongly agree). For example, ”I thought the advertisements about smoking were distorted” (see appendix for complete scale). The measure was reliable (α = .80). A composite measure of perceptions of message bias was created by averaging across the items of subscale. Participants in the no message control group did not complete this subscale.
Motivation to Process. Motivation to process the message was measured using 6 items to assess how much attention respondents paid to the anti-smoking PSAs. An example item is: “I was interested in what the advertisements had to say”. See the appendix for the entire scale. The scale had an acceptable reliability (α = .80). A composite measure of motivation to process the PSAs was created by averaging across the items of subscale. Participants in the no message control group did not complete this subscale.

Attitude Toward Smoking. Attitude toward smoking was measures using 7 items on a 9-point scale ranging from 0 to 9. Items included “I think smoking is: Unsexy/Sexy,” “Bad/Good,” and “Unpleasant/Pleasant,” among others (see appendix). The scale had an acceptable reliability (α = .87). A composite measure of attitude toward smoking was created by averaging across subscale items.

Manipulation check: Toward the conclusion of the posttest, respondents were asked to answer “yes” or “no” to whether or not they had viewed three anti-smoking advertisements. If respondents selected “yes” they were asked to choose the topic of their advertisements (weight control, stress relief, or industry attack). Although this was meant to act as a manipulation check to ensure that participants had actually viewed and assessed the advertisements, it became clear during analysis of participant responses that many individuals had incorrectly responded to whether or not they had viewed the advertisements. 15 out of 40 respondents from the no-message control group indicated they had viewed the three anti-smoking advertisements, while 2 out of 119 respondents from the various other conditions reported not seeing their designated advertisements. It seems likely that the 15 participants from the no-message control group who
indicated that they had viewed anti-smoking advertisements were most likely referring to previous experiences outside of the study.
Chapter 5: Results

Overview

Descriptive analyses for all the dependent variables can be found in Table 1.

Recall that all participants completed a pretest assessing initial behaviors and beliefs toward smoking. Subsequently, each participant was randomly assigned into one of four conditions: a no-message control, industry attack (message control), stress relief, and weight control. Those assigned to industry attack, stress relief, and weight control viewed three anti-smoking advertisements relevant to their category assignment. A series of hierarchical regressions was used to test the hypotheses. The first step included the control variables of smoking status and gender. The second step included the main effects for experimental condition (condition was dummy coded with the no message control as the baseline) as well as concern about weight, concern about stress, daily stress, functions of smoking & weight control, and functions of smoking & stress control, and the two-way interactions that are critical for the hypothesis in Step 3. Only those participants who completed both pre- and posttest questionnaires were included in the analyses. The analysis of the motivation to process the message and perceptions of message bias only excluded participants in the control condition because they were not exposed to any messages. Preliminary analysis found no evidence for 3-way interactions so they were not included in the analysis.

Summary of Regression Analyses

Smoking Attitude: As can be seen in Table 2, there were no significant effects across the three steps of the regression analysis for participants' attitudes toward smoking (step 1, F(2, 35) < 1;
step 2, $F(8, 27) = 1.89, p = .10$; step 3, $F(5, 22) < 1$). None of the control variables, main effects or interactions were significant. Attitude toward smoking was not significantly affected by exposure to the anti-smoking PSAs, indicating that none of the hypotheses were supported for this measure.

**Stress Beliefs:** In the analysis of the stress belief, neither of the control variables (gender and smoking status) were significant predictors of stress beliefs, $F(2, 35) = 1.24, p > .10$. However, there was a significant change in the $R^2$ for the second step of the regression, $F(8, 27) = 5.98, p < .001$. Among the individual predictors entered in this level of the analysis (see Table 2), only the pretest scores for beliefs about the functions of smoking for controlling stress was significant, $\beta = 1.10, t = 2.69, p < .05$. Finally, there was not a significant change in the $R^2$ for the third step of the regression analysis ($F(5,22) < 1$), indicating that none of the two-way interactions were significant.

**Weight Beliefs:** Regression analyses of the weight beliefs measure indicate that there was a marginally significant effect of the control variables in the first step, $F(2, 35) = 2.71, p = .081$. Gender was a marginally significant predictor of beliefs about smoking and weight, $\beta = .278, t = 1.75, p = .088$. Women were more likely to believe smoking would help control their weight. Likewise, smoking status was also a marginally significant predictor of beliefs about smoking and weight, $\beta = .279, t = 1.76, p = .088$. Smokers were more likely to believe smoking would help control their weight. There was a significant increase in the $R^2$ value for the second step, $F(8, 27) = 4.71, p < .005$ (see Table 2). However, none of the specific predictors entered in the second step were significant, suggesting that exposure to a message about smoking probably
led to people's changes in their beliefs about the link between weight and smoking. None of the interactions entered in the third step were significant, $F(5, 22) = 1.85, p > .10$. Weight beliefs were not significantly influenced by exposure to weight-targeted anti-smoking PSAs, indicating a lack of support for hypothesis 3.

Motivation to Process: Analysis of motivation to process the anti-smoking messages indicated that neither of the control variables (gender and smoking status) were significant predictors of motivation to process, $F(2, 18) = .17, p > .05$. However, there was a marginally significant change in the $R^2$ for the second step of the regression, $F (7, 11) = 2.75, p < .065$ (see Table 2). Among the individual predictors entered in this level of the analysis, only exposure to the weight control PSAs was significant, $\beta = .76, t = 2.44, p < .05$. Finally, there was not a significant change in the $R^2$ for the third step of the regression analysis ($F(5,6) = 2.28, p > .10$), indicating that none of the two-way interactions were significant. These results indicate that respondents who were exposed to the weight control PSAs were more motivated to process the messages.

Perception of Bias: Analysis of the perception of message bias measure indicates that there are no significant results after controlling for smoking status and gender, $F(2, 18) < 1$. There are no significant main effects or interactions, both $F$'s $< 1$. 
Chapter 6: Discussion and Limitations

Discussion

The primary objective of this study was to apply the current persuasive communication literature on the functional perspective, specifically, the matching hypothesis, to the health context of anti-smoking campaigns. Prior research in the functional perspective and the matching hypothesis has demonstrated that persuasive messages that target the function a behavior is believed to serve will result in greater attention to the message, longer memory of the message, and greater attitude change (Maio & Olson, 2000; Sanderson & Cantor, 1995; DeBono, 1987). This study sought to apply this concept to the perceived functions of smoking of weight control and stress relief. Studies have indicated that while these are two of the most commonly cited motivations for initiating or maintaining smoking behaviors, smoking does not actually serve these functions and few, if any, anti-smoking campaigns have attempted to target these perceptions (Rhodes, Roskos-Ewoldsen, Eno, & Monahan, 2009; Kassel, Stroud, & Paronis, 2003; Wills, Sandy, Yaeger, & Shinar, 2001; Wills, Sandy, Yaeger, 2002; Baker, Brandon, Chassin, 2004; Myers, McCarthy, MacPherson, & Brown, 2003; Lewis-Esquerre, Rodrique, & Kahler, 2005). More importantly, the key point of much of the literature is not whether or not the behavior actually does fulfill its perceived function, but whether or not individuals believe that it does. Therefore, the ultimate goal of applying the matching hypothesis and functions research to the health context is to convince individuals that the behavior is not serving its intended purpose and is, in fact, harming them.
Although there were a very small number of main effects and interactions of statistical significance, results of the regression analyses did not support any of the three proposed hypotheses. Unfortunately, due to limitations of the study, it is not possible to determine if this is an indication of a lack of support for the matching hypothesis and functionally targeted persuasive messages in the context of anti-smoking campaigns, or if this is simply a failure of this individual study. Based on the severe limitations of the study, it is more likely the latter. Some of the results provide an indication that this is the case.

One of the primary assumptions of the matching hypothesis is that functionally matched messages will result in more focused attention to the message (Maio & Olson, 2000). This was tested in the current study with the motivation to process the message measure. Participants who had initially indicated higher levels of concern about their weight and then viewed the weight-focused anti-smoking PSA did in fact report elevated motivation to process the message. These are important finding in support of the matching hypothesis. Although consistent with the matching hypothesis, these results did not translate into attitude change among participants. Continued research of functionally matched persuasive messaging has implications not just for the future of health communication, but also for the whole of persuasive messaging.

Limitations

The limited effects measured in this study are a result of a combination of limitations, the greatest of which is the sample. Due to the extremely limited number of participants who completed both the first and second part of the study, data that would have otherwise been thrown out had to be used for analysis in order to maintain the minimum number of respondents.
Although over 200 individuals completed part 1 of the study, only 158 also completed part 2; a significant number of which incorrectly identified whether or not they had viewed the advertisements. Ideally, if a similar experiment were to be conducted, a significantly larger sample would be necessary in order to determine the actual influence of functionally matched messages on attitudes toward smoking. In addition, it is important that future research also include younger participants around the average age of initiation. Targeting anti-smoking campaigns at adolescents before they actually begin smoking may ultimately be more effective than attempting to curb smoking behavior after it has started.

The second limitation to the study was the format of the advertisements. Although great effort was taken in creating the advertisements, there was no control over how long a respondent chose to view the image, making it possible for them to simply glance at the ad and quickly move on. Had the advertisements been in the form of a radio or television advertisement, they may have induced participants to take more time to process the messages. Also, the content of the advertisements may not have provided enough “factual” information to convince respondents that smoking was not fulfilling their desired function.

Based on the non-significant results of this study, it is evident that further study is needed in support of the matching hypothesis as a means of persuasion. The poor overall size and quality of the sample and data indicate that the results obtained are certainly not generalizable and should not be used as an assessment of the value of applying the matching hypothesis to anti-smoking or health persuasion research.
References


### Appendix A: Tables

#### Table 1

Descriptive Statistics for Main Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stress Pretest</td>
<td>84</td>
<td>3.38</td>
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<tr>
<td>Stress Posttest</td>
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<td>Weight Pretest</td>
<td>92</td>
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<td>Intention Pretest</td>
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# TABLE 2
Regression Results

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Smoking Attitude</th>
<th>Stress Beliefs</th>
<th>Weight Control Beliefs</th>
<th>Motivation to Process</th>
<th>Biased Perception</th>
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<td></td>
<td>β</td>
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<td>.07, ns</td>
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Note: Based on OLS regression. Standardized Betas shown. Int. = Interaction. *p < .05
Appendix B: Figures

Relationship between Targeted Messages and Beliefs

Weight Control & Stress Relief Concerns

Exposure to targeted anti-smoking PSAs

Attitude Shift
Appendix C: PSAs

Industry Attack

Think the tobacco industry has your best interest at heart?

Think again.

On average, over 440,000 people die from smoking annually.

In 2006, the tobacco industry spent approximately $12.5 billion on marketing per year.

In the same year, approximately 8,500 people died from smoking per week.

You do the math.

Every year smoking results in 5.1 million years of potential lives lost.

How many years of your life have you given to the tobacco industry?
Stress Relief

I started smoking because I was stressed...
Little did I know, nothing compares to the stress of quitting.
Thank you, cigarettes.

If smoking is so great for stress relief, why am I still so stressed?
Thank you, cigarettes.

I smoke when I’m stressed about a test.
Too bad I can’t concentrate during the exam because I’m craving a smoke...
Thank you, cigarettes.
Weight Control

No matter how many cigarettes I smoke,
I still haven’t lost the extra weight.
Thank you, cigarettes.

I started smoking to lose weight,
now I have no energy to enjoy my weight loss.
Thank you, cigarettes.

Going to the gym is a great way to lose weight,
except that I can’t catch my breath during the workout.
Thank you, cigarettes.
Appendix D: Scales

Functions of Smoking: 0 (Completely Unlikely) to 9 (Completely Likely)
Smoking controls my appetite.
Cigarettes keep me from overeating.
Smoking helps me control my weight.
Cigarettes keep me from eating more than I should.
Smoking keeps my weight down.

Cigarettes help me deal with anxiety or worry.
Smoking helps me deal with stress.
Cigarettes help me deal with anger.
Cigarettes help me reduce or handle tension.
When I’m upset with someone, a cigarette helps me cope.
Smoking calms me down when I feel nervous.
When I’m stressed a cigarette can calm me down.

Smoking Intentions: 0 (Completely Unlikely) to 9 (Completely Likely)
How likely do you think it is that you will be smoking cigarettes regularly (every day) in 6 months?
How likely do you think it is that you will be smoking cigarettes regularly (every day) when you are 40 years old?

Concern about Weight: -4 (Strongly Disagree) to +4 (Strongly Agree)
I am concerned about my weight.
I have been on at least one diet recently.
Dieting and exercise are not enough to control my weight.
Concern about Stress: -4 (Strongly Disagree) to +4 (Strongly Agree)
I feel stressed almost every day.
I try to find ways to control my stress.

Smoking Status: Yes or No
Have you ever smoked a cigarette?
Have you ever tried or experimented with cigarette smoking, even a few puffs?
Have you smoked a cigarette any time in the last 30 days?
Have you smoked at least 100 cigarettes in your life?

Perception of Message Bias: -4 (Strongly Disagree) to +4 (Strongly Agree)
I thought the advertisements about smoking were distorted.
I thought the advertisements about smoking were overblown.
I thought the advertisements about smoking were exaggerated.
I thought the advertisements about smoking were boring.
While looking at the advertisements, I felt manipulated.
While looking at the advertisements, I felt exploited.
I thought the advertisements tried to manipulate my feelings.

Motivation to Process: -4 (Strongly Disagree) to +4 (Strongly Agree)
My mind kept wandering as I read the message.
I was interested in what the advertisement had to say.
While reading the message, thoughts about other things kept popping up in my head.
I was motivated to read the message.
While reading the message, I paid close attention.
I didn’t concentrate very hard on the arguments made in the advertisements.
Attitude Toward Smoking: -4 (Strongly Disagree) to +4 (Strongly Agree)

I think smoking is:
Unsexy/Sexy
Bad/Good
Unhealthy/Healthy
Unpleasant/Pleasant
Harmful/Beneficial
Stressful/Relieving
Ugly/Glamorous