Can Corrective Ad Statements Based on *U.S. v. Philip Morris USA Inc.* Impact Consumer Beliefs about Smoking?

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Abstract

Based on the Court's ruling in *U.S. v. Philip Morris USA Inc.* (2006a), tobacco companies have been ordered to fund a large advertising campaign to "correct" consumer beliefs about smoking for which consumers may have been misled due to past deceptive practices of tobacco companies. An ad copy test experiment is used to examine (1) effects of different versions of corrective ad statements that were submitted to the Court by Plaintiff Intervenors on multi-item belief measures and (2) the impact of the ad versions and beliefs on general attitude toward smoking across current adult smokers and nonsmokers. The ad versions tested include a copy-only control condition, copy plus graphic visual condition, and a version with a potentially distracting visual. Results indicate that the corrective statements in ads can have a positive effect on antismoking beliefs of focal interest in the case, and some beliefs are affected more strongly by the test ads than are others. Potential policy implications, limitations, and suggestions for future research are offered.

Keywords: Smoking, smoking beliefs, attitude toward smoking, corrective statements in advertising

An estimated 46 million adults in the U.S. currently smoke, making tobacco use a very challenging and widespread public health problem (Centers for Disease Control and Prevention (CDC) 2010). The CDC (2010) reports that cigarette smoking is responsible for some 443,000 premature deaths annually. In *U.S. v. Philip Morris USA, Inc.* (2006a,c), a United States Federal Court ordered the use of corrective statements in advertising and promotion to augment consumer knowledge and beliefs about smoking by targeting potential misperceptions related to the past marketing and promotion practices of tobacco companies. According to the Court's judgment (*U.S. v. Philip Morris USA, Inc.* 2006a, p.2), tobacco companies will be required to:

> issue corrective statements in major newspapers, on the three leading television networks, on cigarette "onserts," and in retail displays, regarding (1) the adverse health effects of smoking; (2) the addictiveness of smoking and nicotine; (3) the lack of any significant health benefit from smoking "low tar," "light," "ultra light," "mild," and "natural" cigarettes; (4) defendants' manipulation of cigarette design and composition to ensure optimum nicotine delivery; and (5) the adverse health effects of exposure to secondhand smoke.

The Court's decision requires use of a marketing communications campaign which has the goal of mitigating deception or inaccurate consumer beliefs and thwarting any future deceptive marketing practices that could contribute to or encourage tobacco use. Drawing directly from this litigation and the Court's decision (see *U.S. v. Philip Morris USA, Inc.* 2006a), the purpose of our research is to gain a better understanding of how corrective print ad statements might influence consumer beliefs about smoking. Specifically, we are interested in the following questions:

1) Is there support suggesting that current consumers have been misled or deceived by tobacco companies for some or all of the beliefs, and are results similar across all the beliefs?
2) Is there an effect on the focal belief themes of corrective statements in ads offered by the Plaintiff Intervenors, and do ads that include only text differ from those that include text and visual elements related to smoking?

3) Which beliefs differ between smokers and nonsmokers and how do the corrective statements and smoking beliefs influence general attitude toward smoking across smokers and nonsmokers?

Brief Overview of *U.S. v. Philip Morris, USA*

In August 2006, the U.S. District Court for the District of Columbia issued its Memorandum Opinion and Order in which defendants were found liable for massive violations of the Racketeer Influenced and Corrupt Organizations Act ("RICO"). Defendants in the case included: Philip Morris USA, Inc., R.J. Reynolds Tobacco Company, Brown & Williamson Tobacco Company, Lorillard Tobacco Company, Liggett Group, American Tobacco Company, Altria, B.A.T. Industries, the Council for Tobacco Research, and the Tobacco Institute. The Court concluded that over at least the past fifty years, there had been a myriad of unlawful activities, and "found that Defendants had engaged in a deliberate, decades-long campaign to deceive the public concerning the adverse health effects of smoking, cigarette addictiveness and Defendants' manipulation of cigarette contents to enhance addictiveness, the effects of secondhand smoke, and the true health effects of 'light' cigarettes" (*U.S. v. Philip Morris USA, Inc.* 2006b, p.3). The Court found that "each and every one of these defendants repeatedly, consistently, vigorously – and falsely – denied the existence of any adverse health effects from smoking" (*U.S. v. Philip Morris USA, Inc*. 2006a, p.330). The Court also concluded that the defendants "made false, deceptive, and misleading public statements about cigarettes and smoking from at least January 1954" (p.1632).

In order to address the past "false and misleading statements," Plaintiff Intervenors (hereafter referred to as "Intervenors") were directed to propose corrective statements to be used in various communications media. The Intervenors in the case included the American Cancer Society, American Heart Association, American Lung Association, Tobacco-Free Kids Action Fund, Americans for Nonsmokers' Rights, and National African American Tobacco Prevention Network. The Court

instructed the Intervenors to propose copy that contained all five corrective statements for use in print advertisements and websites. As directed by the Court, the Intervenors developed and proposed a print ad that directly addressed all specific beliefs noted by the Court in *U.S. v. Philip Morris USA, Inc*. (*U.S. v. Philip Morris USA, Inc.* 2006b; p. 6). The Court ordered six major tobacco companies to have full page advertisements published in the first section of the Sunday edition of thirty-five major newspapers on a one-time basis for each company. The full-page ads were to be placed in these 35 newspapers following a staggered schedule in which the ads were run once a month for six consecutive months.

On May 22, 2009, the U.S. Court of Appeals (District of Columbia) upheld a trial judge's verdict, including the use of corrective statements in ads, against the defendants (*U.S. v. Philip Morris USA, Inc.* 2009). On February 19, 2010, the government and Philip Morris separately asked the U.S. Supreme Court to review the racketeering verdict against the defendants that was affirmed by the Appeals court, but the Supreme Court declined to hear any appeals on June 28, 2010 (Duff 2010). In upholding the original Court's decision, the May 2009 Opinion by the U.S. Court of Appeals noted that the corrective statements must contain "factual and uncontroversial information," although they did not specify the exact corrective statements that would be required (*U.S. v. Philip Morris USA, Inc.* 2009, p. 81). The corrective statements submitted to the Court by the Intervenors appear to fit these criteria specified by the Court of Appeals. The Intervenors recommended that the Court should establish criteria for the execution of the ads, including consultation with experts and performance of market research to test the effectiveness of proposed communications (*U.S. v. Philip Morris USA, Inc.* 2006b,c). Therefore, an initial test of the proposed corrective statements in print ads offered by the Intervenors is one of the primary objectives of this research. Also, beyond the relevance to this specific case, most of these beliefs are among those that antitobacco researchers

view as important and have long had an interest (e.g., Andrews et al. 2004; Ferraro 1990; Kozlowski et al. 1999; Murray, Prokhorov, and Harty 1994; Rozin and Singh 1999; Tangari et al. 2007).

Corrective Advertising Overview

Because this case concerned deceptive and misleading public statements about cigarettes and smoking made by tobacco companies over some five decades, the corrective statements and campaign ordered by the Court differ somewhat from many of the corrective ad cases previously addressed in the marketing literature (cf. Mazis 2001; Wilkie, McNeil, and Mazis 1984). However, there are several aspects of the corrective advertising literature that appear relevant to this case. Corrective advertising, originally applied in the 1970s by the Federal Trade Commission (FTC), is intended to correct past deceptions, provide truthful information, and deter future use of deceptive advertisements (Wilkie, McNeil, and Mazis 1984). Although research methodology can present challenges (Mazis 2001), studies have shown that corrective advertisements can be effective and are often capable of altering beliefs about a product and its attributes (Armstrong, Gurol and Russ 1983; Lamb and Stutts 1979). However, it should also be noted that corrective advertising may not be sufficient to completely correct consumer misperceptions, can at times have unintended consequences, and may take years to change some misperceptions (Armstrong, Gurol, and Russ 1983; Darke, Ashworth, and Ritchie 2008; Mazis 2001; Wilkie, McNeill and Mazis 1984).

Research has shown the importance of understanding consumers' current beliefs when creating a corrective advertising campaign (Armstrong, Gurol, and Russ 1983), a relevant issue in studying the beliefs related to this case. Five of the consumer beliefs tested in this study are drawn directly from the corrective statement themes set forth by the Court in *U.S. v. Philip Morris USA, Inc* (2006a). These include the following beliefs:

- adverse health effects of smoking;
- smoking/nicotine addictiveness;

- lack of health benefits from smoking "low tar," "light," "ultra light," "mild," and "natural," cigarettes;
- manipulation of cigarette design and composition to ensure optimum nicotine delivery; and
- health effects of secondhand smoke.

Current consumer beliefs regarding the deceptiveness of tobacco company marketing practices are also examined. This latter theme relates to the entire *U.S. v. Philip Morris USA, Inc.* (2006a) litigation and also has been studied in recent research on antismoking advertising campaigns (e.g., Netemeyer et al. 2005; Pechmann et al. 2003). In addition, many of the focal beliefs in this case (e.g., health effects of smoking, health benefits from smoking low tar or "light" cigarettes) are relevant to prior research on consumer perceptions and beliefs regarding smoking (e.g., Andrews et al. 2004; Ferraro 1990; Kozlowski et al. 1999; Murray, Prokhorov, and Harty 1994; Rozin and Singh 1999; Tangari et al. 2007). However, to our knowledge, no direct information exists on the current levels of consumer beliefs or attitudes regarding the central belief themes in the more than 1600 page case document in *U.S. v. Philip Morris USA, Inc.* (2006a).[1]

Conceptualization and Hypotheses

Effects of Corrective Statements

Prior research on corrective ad campaigns has shown that, if successfully planned and executed, they can be effective and are capable of altering targeted beliefs (Armstrong et al. 1983; Mazis 2001; Wilkie et al. 1984). Moreover, certain anti-tobacco media campaign themes are capable of affecting beliefs positively for both adolescents (Andrews et al. 2004; Pechmann et al. 2003) and adults (Tangari et al. 2007). Based on such findings, and literature indicating the potential effects of persuasive communications on beliefs (e.g., Ajzen and Fishbein 1980), H1a predicts that there will be a positive effect on antismoking beliefs for consumers exposed to corrective test ads when compared

to a control group not exposed to ads. However, we anticipate that the effect of the corrective ad will vary substantially across the different beliefs. This suggests that while the Court would be interested in a direct effect of the ad to 'correct' beliefs for which consumers were misled, we contend that the strength of this ad effect will differ across the beliefs, suggesting an interaction. For example, past research on light/low tar cigarettes indicates that many consumers may misperceive light cigarettes to be more healthy than regular cigarettes (e.g. Etter et al. 2002; Borland 2004; Goldberg and Kozlowski 1997; Kozlowski et al. 1998). We predict that once consumers are exposed to a message about the harmfulness of light cigarettes, they will become more aware of the health risks associated with light cigarettes (Kozlowski et al. 1999). In contrast to beliefs about the light/low tar cigarettes, other beliefs, such as the adverse health effects and addictiveness of smoking, generally appear to be well-known (e.g., Netemeyer et al. 2005). Therefore, for these beliefs, it appears there would be less opportunity for changes due to exposure to corrective advertising. Thus, in H1b we predict that exposure to the test ads will have a more positive effect on the light/low tar theme than for other themes such as health consequences or addictiveness of smoking.

H1a: Exposure to ads containing corrective statements will have a positive effect on the antismoking belief themes overall, compared to a control group not exposed to the ads.[2]

H1b: Exposure to ads containing corrective statements will have a stronger effect on some belief themes than others. Specifically, the ads should have a more positive effect on the lack of health benefits of light and low tar cigarettes theme versus the other belief themes.

Distracting and Enhancing Visuals

In *U.S. v. Philip Morris USA, Inc*. (2006b), the Intervenors (on behalf of the U.S. as plaintiff) offer a version of the corrective statements using an ad that contained visuals of a sky and field with a woman embedded in the ad that is not related to the copy concerning beliefs (see Appendix A)

(Campaign for Tobacco-Free Kids 2006).[3] The Intervenors argued that a similar version of the ad would likely be chosen by the defendants in an attempt to reduce the effectiveness of the message theme. As such, the pictures presented in the ad would likely serve as distracting peripheral cues to the intended message (Petty and Cacioppo 1986), thereby decreasing its effectiveness in processing the main message arguments about smoking. In fact, a review of past research supports this prediction. For example, studies have shown that divided attention between information coming from different modalities (e.g., verbal and visual) have a negative impact on encoding (Craik et al. 1996). Fernandes and Moscovitch (2000) demonstrated that a visual distraction task negatively affects the encoding of an auditory word list. Given this research, H2a predicts that the inclusion of distracting visuals in the ads will decrease the strength of the effect of the corrective ads on belief themes, as compared to the ads not using distracting visuals.

In contrast, visuals also can potentially *enhance* the verbal message statements. For example, Argo and Main (2004) identify *vividness-enhancing* characteristics on product warnings as an important determining factor in warning effectiveness. Although the proposed, base corrective print ad submitted by Intervenors (2006b) to the Court included only copy, for media such as point-of-purchase counter displays and package onserts, the inclusion of graphic visuals was recommended. The Intervenors noted that in several studies involving tobacco, results suggested that visual warnings "can increase the effectiveness of communications campaigns" (*U.S. v. Philip Morris USA, Inc.* 2006b, p.30).

There is a substantial literature in both marketing and persuasive communications indicating favorable effects of inclusion of visuals in advertising (e.g., Kisielius and Sternthal 1984; Mitchell and Olson 1981). Studies in the cigarette warning label literature show that visual information that is consistent with verbal warnings can be more effective than verbal warnings alone (e.g., Hammond et al. 2004; Kees et al. 2006; O'Hegarty et al. 2007). For example, Kees et al. (2006) found that adding

a visual warning that is highly consistent with verbal warnings can decrease the perceived attractiveness of the cigarette package and increase smokers' intentions to quit smoking over the verbal-only warning. Also, there is broad conceptual support for "vividness effects," including dual-coding theory (Unnava and Burnkrant 1991), availability-valence theory (Kisielius and Sternthal 1984), and differential attention (Taylor and Thompson 1982).

Given the interest in graphic visuals from the Intervenors, and findings in the marketing and smoking-related literatures, H2 also concerns the effect of the inclusion of graphic visuals in a corrective ad on the smoking belief themes. Specifically, the use of a graphic visual is likely to make the message presented in the ad more salient to consumers by illustrating the consequences of smoking (Messaris 1997; O'Hegarty et al. 2007). In turn, the graphic visual potentially has a greater impact on beliefs. Based on this rationale, H2b predicts that including graphic visuals in antismoking corrective advertising (see Appendix B) will be more effective in influencing beliefs than corrective ads that do not include graphic visuals.

In sum, the literatures reviewed above suggest that visuals can potentially distract or enhance the focal verbal message. Therefore, we predict:

H2: Compared to ads not using visuals, the (a) use of *distracting* visuals in corrective ads will *decrease* the overall strength of effects on the belief themes, while (b) the use of *graphic* visuals in the ads will *increase* the overall strength of effects on the antismoking belief themes.

Hypothesized Effects on Beliefs: Differences between Smokers and Nonsmokers

Although there is a clear need to examine beliefs of both smokers and nonsmokers in *U.S. v. Philip Morris USA, Inc.* (2006a), there is little distinction suggested in the Court Opinion between the beliefs of smokers versus nonsmokers. Yet, there is a growing body of research examining differences in attitudes and effects of communication vehicles on smokers versus nonsmokers (e.g.,

Andrews et al. 2004; Ashley et al. 2000; Koval et al. 2005; Mitchell 1999; O'Hegarty et al. 2007; Peters et al. 2007; Poland et al. 2000; Tangari et al. 2007). Generally, beliefs and attitudes toward smoking are typically quite negative among nonsmokers (and substantially worse than smokers' attitudes) (cf. Jamieson and Romer 2001; Ross and Perez 1998). However, we anticipate that the magnitude of the differences across focal belief themes in *U.S. v. Philip Morris USA* and smoking status will *not* be consistent. For example, from social judgment theory, it is well-known that individuals will counterargue or ignore certain messages that conflict with their own behaviors and attitudes (Petty and Cacioppo 1981). Such messages are contrasted with one's own salient attitudes and beliefs (e.g., Sherif and Hovland 1961). Moreover, self-perception theory (Bem 1967; 1972) predicts that people often infer their attitudes based on observations of their own behavior. Therefore, based on social judgment and self-perception theory, it can be argued that smokers will discount the negative consequences of their smoking on the health effects of others. This suggests that for effects of second-hand smoke, antismoking beliefs will be substantially more positive for nonsmokers than smokers. Similarly, for the deceptiveness belief, smokers generally would not want to believe that they had been deceived and manipulated by the marketing tactics of tobacco companies, although this would not be a perceptual defense necessary for nonsmokers. Moreover, smokers should be cognizant of the addictiveness of smoking since it fits with their ongoing behavior of smoking. As such, we anticipate there would be the least difference between smokers and nonsmokers for the addictiveness belief. Thus, we predict:

> H3: Compared to smokers, non-smokers will have stronger (i.e., more positive) levels for the focal beliefs in *U.S. v. Philip Morris USA*, but smoking status and specific belief themes will interact. Specifically, there should be a greater difference between smokers and nonsmokers for beliefs such as tobacco company deceptiveness and second-hand smoke than for beliefs regarding the addictiveness of smoking.

Influences on Attitude toward Smoking

As with the rationale presented for H3, we predict in H4 that exposure to the corrective ads will reduce overall attitude toward smoking, but that this influence is moderated by smoking status. Given that attitudes toward smoking are generally quite negative among nonsmokers (cf. Romer and Jamieson 2001), a stronger effect of the ad is expected for smokers because there is more opportunity for change due to the fact that their smoking-related attitudes are far more positive (e.g., Ross and Perez 1998). In turn, this should offer greater opportunity for the desired effects of persuasive communications, which is similar to that found for antismoking advertising campaigns (Andrews et al. 2004). Thus, we expect that:

H4a: Exposure to ads containing corrective statements will have a negative effect on attitude toward smoking compared to a control group not exposed to the ads, but this effect will be stronger for smokers than nonsmokers.

H4b: There will be a negative effect of the focal antismoking beliefs on attitude toward smoking, beyond that which is explained by the ad exposure and smoking status.

H4c: The interaction between smoking status and beliefs will explain incremental variance in attitude toward smoking, indicating that the focal beliefs will decrease the attitude more strongly for smokers.

Pilot Study

Purpose and Procedures

The purpose of the pilot study was to test multi-item measures of the six smoking belief themes identified in *U.S. v. Philip Morris USA, Inc.* (2006a) and initially assess consumers' baseline levels of these beliefs. Items for the pilot study were generated through a review of the literature (e.g., Andrews et al. 2004; Kozlowski and Pillitteri 2001; Tangari et al. 2007), and development by the

researchers.[4] The pilot study was also designed to provide a preliminary assessment of the effects of the proposed corrective ad copy offered by the Intervenors across the six key antismoking beliefs. The study included three corrective advertising conditions as a between-subjects factor: (1) a control in which no ad was shown; (2) a proposed corrective ad containing copy only; and (3) a corrective ad that contained the proposed copy (identical to condition 2) and two graphic visuals (relating to focal belief themes) at the bottom of the ad.

The copy-only corrective ad condition was obtained directly from the proposed ad copy submitted to the Court by the Intervenors in *U.S. v. Philip Morris USA, Inc* (2006b, p.6) and the copy of this proposed ad included all of the belief themes described in the Final Opinion (*U.S. v. Philip Morris USA, Inc* 2006a). (An example of the graphic visual and ad copy condition used in the pilot and main study is provided in Appendix B.) The target corrective test ad was positioned between two filler ads. Respondents were randomly assigned to the different ad conditions and respondents in the control condition only completed the survey, with no ad exposure (i.e., they were part of a non-exposure control group; cf. Foley and Pechmann 2004; Pechmann and Andrews, forthcoming). There are tradeoffs recognized for the selection of control ad groups, which can include choices among purged/"tombstone" ads, different ads for the same brand, or, as used here, non-exposure controls (Andrews and Maronick 1995; Pechmann and Andrews, forthcoming).We selected the non-exposure control, as opposed to a purged or different ad for the same appeal, because rather than any specific ad or campaign, the Court's decision was based on the tobacco companies' actions and public statements that occurred over at least five decades, and this provides little basis for the construction of a control or placebo ad condition. In addition, the *entire* proposed corrective ad copy contained facts and points on smoking consequences, making it difficult to excise out targeted claims or in finding a comparable ad without such claims (see Andrews and Maronick 1995, p. 306).

Participants in all of the conditions in the pilot received the same general instructions. In addition to the general instructions, participants in the ad conditions were also asked to read over the ad they were provided with carefully, and then directed to answer the questions in the survey. Participants completed a paper and pencil survey in the pilot study and the study consisted of 226 undergraduate students at a major Southern university who received course credit for participating (*Mean* age = 23, Range = 18 to 36). Males represented approximately 40% of the sample, and 24% were current smokers.

Pilot Study Measures and Results

Primary outcome variables used in the study included the six key belief themes associated with the case. The multi-item measures of the six themes used in this pilot and the main study are shown in Appendix C. The belief items were all seven point scales with the endpoints "Strongly Disagree–Strongly Agree." Higher means indicate stronger agreement with the theme (i.e., higher means indicate greater agreement with adverse health effects from smoking, the addictiveness of smoking, etc.).

Coefficient alpha estimates assessing the reliability of pilot study measures are provided in Appendix C and range from .78 to .93, and thus were considered acceptable (Nunnally and Bernstein 1994). We then performed a mixed analysis of variance using the corrective ad manipulation as a between-subjects factor and the six belief themes as a within-subjects factor (cf. Creyer et al. 2002). Follow-up tests and contrasts were next performed to test ad condition effects between different ad conditions for each belief theme, and these preliminary findings are shown in Table 1A.

[Insert Table 1 about here]

A test of effects of the corrective ads on smoking beliefs shows a main effect of ad condition ($F(2,223) = 11.82$, $p < .001$). In addition, the interaction between beliefs and ad condition is significant ($F(10,1115) = 3.07$, $p < .01$). Given the interaction, Table 1A shows results of univariate

analyses of variance and follow-up contrasts for each of the belief themes. All univariate F-values are significant (with all $p < .05$), except for the deceptiveness belief ($p = .09$), and the means of the beliefs are all higher for the corrective ad conditions compared to the no ad control. Contrasts were also performed for each belief to examine if the ads with graphic visuals strengthen the belief themes compared to the corrective ads not using visuals. As shown in Table 1A, significant differences are found for the beliefs regarding health effects of smoking ($p < .05$), addictiveness of smoking ($p < .05$), and secondhand smoke ($p < .05$). The differences for the other beliefs are nonsignificant.

Main Study

The purpose of the pilot study was to develop and use multi-item measures to assess the six focal beliefs related to *U.S. v. Philip Morris USA* and to test if corrective ads submitted to the Court by the Intervenors, or other corrective ads using the proposed copy, can potentially influence these key beliefs. Results generally indicate that corrective ads can have a favorable overall effect, relative to the control. However, a potential limitation of this pilot study is its use of student subjects (mean age=23). In addition, although there is no primary differentiation between smokers and nonsmokers in *U.S. v. Philip Morris USA, Inc.* (2006a), one major goal for many public health advocates would be to influence antismoking beliefs and attitudes of current smokers. Thus, in our main study, we test the hypotheses on an adult sample comprised of both smokers and nonsmokers. We also perform a hierarchical analysis of the joint effects of the corrective ad exposure and focal beliefs in *U.S. v. Philip Morris USA* on general attitude toward smoking. Lastly, we include an additional ad that was submitted to the *Court* by the Public Intervenors (on behalf of the U.S. as plaintiff) which offered a version of the corrective statements that contained potentially distracting visual elements (Campaign for Tobacco-Free Kids 2006). The ad used for this study had the potentially distracting visuals that were identical to the version submitted by the Intervenors, but we included the ad copy that was proposed by the Intervenors for the base corrective ad.[5]

Main Study Methodology

Design, Procedure, and Sample. The experimental design for the main study was a 4 (corrective ad condition) x 2 (smoker status) x 6 (belief theme) mixed design. The corrective ad condition consisted of four levels: a non-exposure control condition (with no corrective ad), copy-only ad condition, copy and graphic visual ad condition, and copy and distracting visual ad condition. Both visual corrective ad conditions were identical to the copy-only condition, with the exception of the inclusion of the visuals. Belief theme was a within-subjects factor consisting of the measures of the six different belief themes. The copy for the corrective advertisements used in the study was obtained directly from the proposed corrective statements submitted by the Intervenors for *U.S. v. Philip Morris USA, Inc*. (2006b), and each ad included in the copy the specific beliefs noted in the case (2006a, 2006c). The graphic visual used in this study is similar to those recommended by the Intervenors and used on tobacco packages in the European Union. The distracting visual was included in the documents submitted to the Court by the Intervenors in *U.S. v. Philip Morris USA, Inc*. (Campaign for Tobacco-Free Kids 2006). Ad stimuli used in the main study are provided in Appendices A and B.

Participants in the study were 390 adult smokers and nonsmokers. The average age of the participants was 43 (*sd* = 14; range = 18-87) and the median annual income of participants was $35-50,000. Approximately 56% of the sample was female. Also, the sample was balanced between current smokers (51%) and nonsmokers (49%), given smoking status as a factor in the study, and the desire to have approximately equal cell sizes for the experimental design.[6] Four age quotas (i.e., 18-31, 32-44, 45-57, 58+), based on U.S. Bureau of the Census data, were set to help ensure representative samples in all age groups 18 and older. Participants were recruited through a major online marketing research service and the study was administered online.

After successful screening for minimum age (18), gender, smoking, age quotas, and study consent, respondents were randomly assigned to one of the four ad treatment conditions and then responded to the study measures. Participants in all of the ad conditions, including the control condition where they were not exposed to an ad (cf. Andrews and Maronick 1995), were given identical information indicating that they were participants in a national study and that they would be asked questions about their opinions and beliefs regarding smoking. Respondents were not provided with any information regarding the Court case. As in the pilot study, respondents in the ad conditions were asked to read over the ad carefully and then answer the questions in the survey. After completing the measures section, participants were asked to answer some basic demographic questions and then were thanked for their time. The methodology and presentation of ad treatments and measures online were consistent with generally-accepted procedures for advertising copy testing (Maronick 1991; Pechmann and Andrews, forthcoming).

Measures. The six belief measures developed in the pretest and tested in the pilot study were employed in the main study (see Appendix C for measures and reliability estimates). In addition, the main study also included a standard, three-item measure of attitude toward smoking (Ajzen and Fishbein 1980), and a two-item measure used in combination to determine participants' smoking status (Netemeyer et al. 2005) (see Appendix C). Also, because the main study tests the relative efficacy of an ad featuring less relevant visuals that potentially distract from the ad message, manipulation check items included whether pictures in the ad conditions were perceived as appropriate/relevant to the text featured in the ads and whether the pictures distracted from the ad message. Relevance was measured with a 3-item, seven point scale ($\alpha = 0.87$) anchored with "Strongly Disagree-Strongly Agree." Items are shown in Appendix C.

Results

Initial Smoking Belief Levels and Corrective Ad Effects

Manipulation Check. As expected, the participants rated the graphic disease pictures as more relevant to the ad copy ($M = 5.89$; $F = 48.73$, $p < .01$) than the ad presented by the Intervenors containing the distracting pictures of a woman and a blue sky with clouds ($M = 4.27$). Also, as expected, participants rated the "blue sky" ad as more distracting from the ad message ($M = 3.09$; $F = 10.65$, $p < .01$) than the ad featuring graphic disease pictures ($M = 2.21$).[7]

Belief Levels and Corrective Ad Effects. To test the hypothesized results on strength of the belief measures, a mixed analysis of variance was used with ad condition and smoking status entered as between-subjects factors and the six different belief themes entered as a within-subjects factor. Results for the three-factor, mixed analysis of variance are shown in Table 2 and means for each of the beliefs across conditions are shown in Table 3. H1a and H1b predict that exposure to the corrective ads will influence the belief themes overall, but the strength of the effect would vary across beliefs. As shown in Table 2, the main effect of ad condition is significant ($p < .01$), and the interaction between the ad condition and belief themes is also significant ($p < .01$). The pattern of findings suggests there is an overall favorable effect of the corrective ad, but that the ad conditions had a stronger influence on some belief themes than on others. These findings offer support for H1a and H1b. A plot of the relevant mean values is shown in Figure 1. The corrective ad factor has a significant effect on light/low tar beliefs, company deceptiveness, cigarette manipulation ($p < .01$), and health effects ($p < .05$), and it has a nonsignificant effect on addictiveness and secondhand smoke.

[Insert Tables 2 and 3 and Figure 1 about here]

To test the effects of different corrective ad conditions, follow-up contrasts were performed for the belief types, and results are shown in Table 1B. Results indicate that beliefs were stronger in the combined corrective ad conditions compared to the non-exposure control condition (all $p < .05$ or better), with the single exception of addictiveness. Also, note that the belief means in the non-

exposure control condition are all relatively high, given the use of seven-point scales.

H2 predicted that the distracting visual would reduce effects relative to the alternative corrective ad conditions and the inclusion of relevant graphic visuals would increase the strength of effects. As can be seen from the pattern of means in Table 1B and in Figure 1, there is little support for this prediction. While the ad including a graphic visual had the desired effect on all beliefs except addictiveness when compared to the non-exposure control condition, the pattern of means suggests that it is not (significantly) more influential in strengthening the beliefs compared to the copy only corrective ad. As shown in Table 1B, there generally was a significant difference between the ad with the distracting visual and the control condition, but the means for the distracting visual were not reduced relative to the means for the copy only ad condition.[8]

H3 predicted that although antismoking beliefs generally should be weaker for smokers than nonsmokers, there should be stronger differences between smokers and nonsmokers for beliefs such as second-hand smoke and deceptiveness. Consistent with this prediction, there is a significant interaction between antismoking beliefs and smoking status. As shown in Figure 2, while there is a small difference in addictiveness beliefs between smokers and nonsmokers, there are larger, more substantial differences ($p < .0001$) between beliefs regarding second-hand smoke and tobacco company deception. In general, results in Figure 2 suggest that there is much greater variance across the focal belief types for smokers than for nonsmokers.

[Insert Figure 2 about here]

Effects on Overall Attitudes toward Smoking

H4 examines the direct effects of beliefs, the corrective ad exposure, and smoking status, in addition to the interactions of ad exposure and smoking status and beliefs. To test H4, we performed a hierarchal regression with overall attitude toward smoking as the dependent variable. Given the similarity in the effects of three corrective ad conditions (as shown in Table 1B and Figure 1), the

three different ad conditions were combined into a corrective ad exposure condition (coded as a '1') and the no exposure control (coded as a '0') that is consistent with current market status if no corrective campaign occurs. For the belief measure, we first examined the reliability of a combined belief measure that was comprised of the indicant for each belief theme. This summated measure was reliable ($\alpha = .85$).[9] Then, based on prior research examining potential direct and moderated effects of positively-correlated antismoking beliefs (e.g., Andrews et al. 2004), we examined the impact of a single beliefs construct and its interaction with smoker status. Measures were mean-centered prior to creating the smoker status x corrective ad condition and smoker status x antismoking beliefs interaction terms (Aiken and West 1991), and the results are shown in Table 4.

[Insert Table 4 about here]

In Model 1, the exposure to the corrective ad decreases attitude toward smoking (as desired) and, as expected, there is a positive relationship between attitude toward smoking and smoking status. In Model 2, the antismoking belief measure is added to the model and the adjusted R^2 increases to .50, explaining an additional 11% of incremental variance relative to Model 1 (*p*-value for F-change between Models 1 and 2 < .001). Then, in Model 3, the addition of the interaction between smoker status and the corrective ad is significant ($p < .05$; model $R^2 = .51$). The negative interaction coefficient indicates that the effect of the corrective ad on attitude toward smoking is stronger for smokers than nonsmokers. Lastly, in Model 4, we examined the effect the interaction of smoking status and beliefs on attitude toward smoking and compared results to the direct effect baseline in Model 2. As shown in Table 4, the interaction coefficient is -.03 and nonsignificant ($p > .20$). This suggests that compared to the direct effect baseline results shown in Model 2, antismoking beliefs did *not* significantly decrease attitude toward smoking to a greater extent for smokers compared to nonsmokers. Thus, the hierarchical regression analysis shows significant effects of both the corrective ad exposure and the beliefs on smoking attitude, and results offer support for H4a and

H4b, but not for H4c.

Discussion

As correctly noted by Wilkie and Gardner (1974) over three decades ago, "Public policy regarding consumer behavior is going to be made, with or without research evidence." Over the years, there have been calls for greater input from consumer researchers in providing research-based evidence for important policy decisions regarding corrective advertising (Mazis 2001; Wilkie, McNeil and Mazis 1984). This need for research seems apparent in the Court's ruling in *U.S. v. Philip Morris USA Inc.*, which will require major tobacco companies to implement a multi-million dollar advertising and promotion campaign that focuses on corrective statements based on past deceptive practices and marketing of the tobacco companies. Thus, a primary goal of our study was to examine initial belief levels and gauge whether corrective ads, such as the ones specifically recommended by the Intervenors (*U.S. v. Philip Morris USA, Inc.* 2006b), would affect the focal core consumer beliefs identified in the litigation. Despite more than a 1650-page opinion rendered by the Court in this controversial case (2006a), there is little focus on current consumer belief levels. The recommendation from the Intervenors to conduct market research to test potential corrective statements offers further motivation for our studies (*U.S. v. Philip Morris USA, Inc.* 2006b; p.41-43).

Overview of Findings

Initially, multi-item measures for each of the belief themes identified in *U.S. v. Philip Morris USA* (2006a), along with the belief about tobacco company deceptiveness, were developed and tested in a pilot study. These measures were then used in an experiment in which the effects of different versions of print advertisements were examined using advertising copy test principles. The ads were based on documents submitted at the direction of the Court by the Intervenors (e.g., American Heart Association, American Cancer Association).

Results indicate that there is a significant effect of exposure to the corrective ads (compared to

a control group not exposed to the ads), but the strength of this effect varies across the different beliefs. Specifically, there are significant effects of the ad factor for the light/low tar belief, company deceptiveness, cigarette manipulation, and health effects beliefs. Results suggest that the proposed corrective ads can be effective at influencing these specific beliefs. Yet, the corrective statements in the ads were not as effective at influencing beliefs related to smoking addictiveness. A possible reason that smoking addictiveness was not as strongly influenced by the corrective ads compared to other beliefs is that smoking addictiveness already is very strong (as can be seen by the mean for the no exposure control condition in Table 1B), leading to ceiling effects limiting the degree to which beliefs can become stronger due to advertising and promotion (Andrews et al. 2004).

We also examine whether the addition to the ad copy of (enhancing) graphic visuals and a distracting visual condition (based on documents submitted by the Intervenors; *U.S. v. Philip Morris USA, Inc.* 2006b) had an influence on the belief themes. For this sample and specific copy test context, there was little effect of these visuals, relative to the copy only ad condition. Although the pilot test suggests that the presence of a graphic visual is capable of increasing the strength of health effects and addictiveness beliefs for the sample of young adults (mean age of 22), the results in the main study indicated that the addition of the graphic visual did not significantly influence beliefs on a consistent basis. However, while there were minimal effects on these (more cognitive) belief themes, there was some effect of the graphic visual in the main study on overall smoking attitude.

There also was little evidence that the "distracting" ad condition performed less favorably than the copy only or graphic visual ad versions in which the copy presented was static. Although manipulation checks indicated that participants rated the distracting visual condition as more distracting compared to the graphic visual condition ($p < .01$), the absolute values for perceived distraction were low across conditions ($M_{distracting\ visual} = 3.09$; $M_{graphic\ visual} = 2.21$). Perhaps the results were not as strong as expected due to the forced exposure to the advertisement that may have reduced

the effect of the distracting visual. Although literature suggests that pictures in the ad would likely be a distraction to the processing of the message (Petty and Cacioppo 1986), it is possible that consumers who would be more likely to support the message (e.g., non-smokers) versus consumers who would be more likely to respond negatively to the message (e.g., smokers) may react differently to ads that include distracting elements (O'Keefe 2002). Future research might address the effect of distraction under different exposure conditions and other elements in ads (headlines, theme) that may lead to distraction.

Consistent with H3, results show that while the target beliefs differed and were lower for smokers in general, there were more substantial differences between smokers and nonsmokers for some of the target beliefs (e.g., second-hand smoke, deceptiveness) than others (e.g., addictiveness). In addition, results show direct effects of the corrective ad exposure and the target beliefs on attitude toward smoking, and they suggest that the ad exposure has a somewhat greater effect on reducing attitude toward smoking for smokers than for non-smokers.

Implications for Corrective Statements Associated with U.S. v. Philip Morris

There are several potential implications of these findings that appear relevant to *U.S. v. Philip Morris* (2006a, 2006c). The copy test findings show that, in general, consumers' beliefs about smoking can be affected in a manner consistent with the objectives of the Court. Specifically, results from our study show that the exposure to corrective advertisement had significant effects on the light/low tar belief, cigarette manipulation, company deceptiveness, and the health effects beliefs.

Although not all of the belief themes were significantly affected by the ads, it should be noted that many of the mean levels for these belief themes in the control groups not exposed to the corrective statements were already high on these multi-item seven-point scales. For example, the mean is particularly high for the addictiveness belief ($M = 6.19$), given a scale maximum of seven. Some might argue that despite past misleading actions, statements of executives, and marketing

tactics of tobacco companies, the majority of these study participants currently do not appear to have extremely high levels of "incorrect" general beliefs about several aspects of smoking and its consequences. Therefore, even though some of the general beliefs show increases from the ad exposure, they may not be as strongly affected because the control group respondents already reported such high mean levels in their beliefs. Note, however, that the beliefs of current smokers are somewhat lower than nonsmokers. For smokers, corrective statements in advertising appear to offer the most substantial opportunity for strengthening beliefs related to deceptiveness of tobacco companies, health effects of secondhand smoke, and the light/low tar cigarette beliefs.

For the nonsmokers in our main study (as well as all participants in our pilot study), the weakest anti-smoking belief theme detected in the control condition involved the health benefits of light/low tar cigarettes. Indeed, prior literature suggests that many consumers perceive that low tar and light cigarettes are better or less harmful for them than regular cigarettes (Kropp and Halpern-Felsher 2004; Kozlowski et al. 1998). Yet, importantly, our results show that the low tar/ light cigarette belief theme can be strengthened through the use of corrective statements. Thus, although there can be limitations to the effectiveness of any corrective campaign (Wilkie et al. 1984), the most effective approach may be to weight any such campaign toward the weaker beliefs (e.g., about light/low tar cigarette manipulation), in which the opportunity to 'correct' consumer misperceptions appears to be the most substantial. The campaign, however, also should continue to reinforce other important beliefs identified in *U.S. v. Philip Morris USA, Inc.* (2006a, c), which clearly have implications for consumer welfare.

Results also indicate that smokers have weaker antismoking beliefs ($p < .05$ or better) than nonsmokers for *all* beliefs. Certainly, smokers are an important target market for public health campaigns and are of considerable interest to those in charge of tobacco control policy. These findings related to differences between smokers and nonsmokers, and the differences between the

students in our pilot study and the older adults in our main study (see Table 1A & 1B), suggest the importance of targeting used in different media. For example, given that the Intervenors recommend that corrective statements in television ads should focus on singular belief themes (*U.S. v. Philip Morris USA, Inc.* 2006b) specific ads and beliefs might be targeted to audiences for which effects will be of the greatest potential impact.

Our study also addresses how overall attitudes toward smoking are affected by the combination of the ads and beliefs across both smoker and nonsmoker segments. The hierarchical analysis reveals that the focal beliefs in *U.S. v. Philip Morris USA, Inc.* explain variance in overall attitudes beyond what could be explained by the ads or smoking status alone. This finding reinforces the importance of these beliefs in affecting more general attitudes toward smoking, supporting their importance for public policy and consumer welfare. Furthermore, the effects of the corrective statement exposure and beliefs on attitude were somewhat stronger for smokers than nonsmokers. This overall pattern of findings suggests the importance of use of antismoking efforts in general to influence beliefs about smoking and smokers' attitudes.

Limitations and Future Research

There are several limitations of the research that may affect the generalizability of the findings. Respondents only saw a limited number of potential corrective advertisements, which were based on information directly provided within documents submitted to the Court by the Intervenors. Although the use of corrective statements has been upheld, the exact corrective statements and specific advertisements that will be required have not yet been decided and the specific remedies regarding corrective advertising go back to Judge Kessler (Duff 2010). Thus, other corrective advertisements combined with different visuals or graphic pictures could be used to test the same hypotheses and/or repeated exposure to these corrective advertisements could be studied (Hawkins and Hoch 1991; Hawkins, Hoch and Meyers-Levy 2001). The Final Order (*U.S. v. Philip Morris*

USA, Inc. 2006a) also specified that other media (e.g., television) should be used to focus on specific beliefs, rather than all of the beliefs as in the print ads. Thus, future research may examine the use of corrective statements in other types of media that focus on a single type of belief. Additionally, as in most copy test research, data were collected in settings that may differ from natural ad exposures, and such differences might influence the generalizability of findings.

For the control condition in our study, we chose a non-exposure control rather than use a purged /'tombstone' ad condition or a different ad control (Andrews and Maronick 1995). Unlike many corrective ad studies, there was not a specific ad (or limited number of ads in a campaign) that was in question. Instead, there were many diverse actions that occurred over some fifty years and were viewed by the Court as "…false, deceptive, and misleading public statements about cigarettes and smoking" (p.1661). The Court was concerned with the long-term effects of these public actions that occurred for many decades, and in such an instance, the effect of the Court-based corrective ad relative to baseline beliefs of consumers not exposed to any ad seems reasonable. Although such non-exposure controls are used in the evaluation of public policy research and social marketing campaigns (e.g., Foley and Pechmann 2004; Pechmann and Andrews, forthcoming), we acknowledge that they may be subject to some tradeoffs regarding the specificity of measures and comparison of test and control groups versus other ad control choices (cf. Andrews and Maronick 1995). Future research could compare our findings from our study to alternative ad control conditions.

Although the beliefs examined in this study were tied directly to those specified in *U.S. v. Philip Morris* (2006a, 2006c), there may be other potential beliefs related to smoking that could be examined (e.g., relative risk, different types of cancer, years of life lost; see Jamieson and Romer 2001). Similarly, because of their central focus on particular consumers' beliefs in the Court's decision, our research addressed effects of corrective statements in ads on beliefs, with a secondary analysis related to effects of the corrective ads and beliefs on general attitude toward smoking.

Although *U.S. v. Philip Morris USA, Inc.* did not have a direct concern with effects beyond these belief outcomes, many public health advocates may be interested in a broader set of dependent variables. For example, would using corrective ad statements to change belief levels act to directly or indirectly lead to smoking cessation among smokers or be effective in encouraging adolescents or college-aged consumers *not* to begin smoking? In sum, there are many potential research opportunities that might arise from the decision of the highly contested and intriguing case of *U.S. v. Philip Morris USA, Inc.* (2006a).

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Footnotes

1. While it is recognized that this case and the corrective statements proposed for use differ from conventional corrective advertising campaigns, for parsimony in the remainder of the paper, we at times use the term 'corrective ads' or 'corrective ad campaign' in reference to the use of corrective statements in ads proposed to the Court.
2. The belief measures developed assess antismoking beliefs using endpoints of Strongly Disagree ('1) to Strongly Agree ('7'), such that corrective statements attempt to increase mean belief levels. For example, for an item such as "Smoking is addictive," ads would attempt to increase agreement with the statement, consistent with the objective of the Court.
3. Note that the copy used in the ad in Appendix B is identical to versions tested in the main study. The copy for all of the tested ads comes directly from the corrective statements that were proposed by the Intervenors.
4. A separate initial pretest with 55 participants (50% male and 50% female) was conducted to generate and refine the belief measures used in the pilot. Preliminary analyses, assessment of face validity, and reliability tests were used to reduce the number of belief theme items and develop reliable multi-item measures. For this pretest data, coefficient alpha estimates for each of the six belief measures exceeded .70 (ranging between .76 and .93), and thus are considered acceptable for our more extensive pilot study (Nunnally and Bernstein 1994).
5. The corrective advertisements used in this study were based directly on what was proposed and offered by the Intervenors. The corrective statements in the ads address the specific beliefs addressed in the Final Judgment and Remedial Order (2006c), but the exact corrective statements and ads that may be implemented have not yet been established.

6. We also calculated weighted means for the belief themes to match the ratio of smokers (20%) and nonsmokers (80%) in the U.S. (CDC 2010). The means are: Health Effects=6.24, Addictiveness=6.31, Secondhand Smoke=5.89, Deceptiveness=5.84, Manipulation=5.95, Light/Low-tar=5.95. Weighted means for each ad condition are available upon request from the first author.
7. Note, however, that the mean for the distracting ad is relatively low (M = 3.09). Nevertheless, it is significantly more distracting than the ad featuring the disease pictures (M = 2.21; F = 10.65, p < .01), permitting a test of the distracting visual condition.
8. In addition, as shown in the bottom of Table 1B, the ad condition did significantly influence attitude toward smoking ($F(3, 383) = 5.99$, $p < .01$), and more detailed analyses related to the predicted effects in H4 are addressed below.
9. The correlations between each specific belief theme and attitude toward smoking were all significant ($p < .0001$), and ranged between -.30 to -.50. Also, as suggested by Table 1B means, there were not significant differences in this study between the three different corrective ads for the summated belief measure (all $p > .10$).

Table 1

Effects of the Corrective Advertisements on Antismoking Belief Measures

Table 1A: Pilot Study

	No Ad (Control) [a]	Ad with Copy Only [b]	Ad with Copy & Graphic Visual [c]	F-Values
Health Effects	6.26[c]	6.38[c]	6.62[a,b]	5.83**
Addictiveness	5.83[c]	5.99[c]	6.28[a,b]	5.73**
Secondhand Smoke	6.07[c]	6.20[c]	6.49[a,b]	3.98*
Deceptiveness	5.42[b]	5.85[a]	5.57	2.18
Cigarette manipulation	5.49[b,c]	5.85[a]	5.99[a]	5.44**
Light/Low-tar	4.73[b,c]	5.51[a]	5.70[a]	12.94**

Table 1B: Main Study

	No Ad (Control) [a]	Ad with Copy Only [b]	Graphic Visual [c]	Distracting Visual [d]	F-Values
Health Effects	5.81[b,c,d,e]	6.07[a]	6.07[a]	6.18[a]	2.36*
Addictiveness	6.19[d]	6.25	6.13[d]	6.41[a,c]	1.75
Secondhand Smoke	5.36[c,e]	5.52	5.76[a]	5.72	1.42
Deceptiveness	4.88[b,c,d,e]	5.50[a,d]	5.70[a]	5.89[a,b]	7.53**
Manipulation	5.28[b,c,d,e]	5.81[a,d]	5.89[a]	6.15[a,b]	7.41**
Light/Low-tar	5.32[b,c,d,e]	5.95[a]	6.08[a]	5.95[a]	7.86**
Smoking Attitude	3.14[c,d,e]	2.72	2.23[a]	2.59[a]	4.10**

* $p < .05$; ** $p < .01$.

Note: Numbers in the table are belief means based on seven-point scales. Increases in these belief means are consistent with the goal of the corrective ads. For belief levels in which the ad condition had a significant effect, superscript letters indicate significant differences for follow-up contrasts between the ad conditions. For example, the belief in health effects' mean for the ad with both copy and the graphic visual is significantly different ($p < .05$) from the means for the no ad control and the ad with copy only, but the control and the ad with copy only are not significantly different. A superscript 'e' indicates that the no ad control is significantly different from the combined corrective ad conditions.

Table 2

Main Study: Effects of Corrective Ads and Smoking Status on Antismoking Beliefs

Independent Variables:	F-Values	p-value
Main Effects:		
Ad Condition	6.79	<.001
Smoker Status (SS)	45.23	<.001
Smoking Beliefs	34.85	<.001
Interaction Effects:		
Beliefs x Ad	3.13	<.01
Beliefs x SS	13.61	<.001
Ad x SS	1.09	.35
Beliefs x Ad x SS	.63	.83

Table 3

Means for Corrective Advertisements on Antismoking Belief Measures for Smokers and Nonsmokers

	No Ad (Control)		Ad with Copy Only		Ad with Copy & Graphic Visual		Ad with Copy & Distracting Visual	
	Smoker	Non-Smoker	Smoker	Non-Smoker	Smoker	Non-Smoker	Smoker	Non-Smoker
Health Effects	5.41	6.22	5.83	6.39	5.70	6.44	5.96	6.39
Addictiveness	6.01	6.37	6.14	6.39	6.01	6.24	6.38	6.43
Secondhand Smoke	4.56	5.88	5.08	6.09	5.28	6.23	5.35	6.07
Deceptiveness	4.06	5.71	4.99	6.16	5.21	6.19	5.55	6.19
Cigarette manipulation	4.81	5.77	5.65	6.03	5.67	6.11	6.01	6.28
Light/Low-tar	5.09	5.55	5.84	6.09	5.88	6.29	5.83	6.07

Table 4

Hierarchical Regression Model Results for Effects of the Corrective Advertisement, Smoker Status, and Beliefs on Overall Attitude toward Smoking

	Standardized Regression Coefficients			
Predictors:	**Model 1: Ad / Smoker Status**	**Model 2: Smoking Beliefs**	**Model 3: Moderation Model 1**	**Model 4: Moderation Model 2**
Corrective ad	-.16***	-.09***	- .09***	- .09***
Smoker status	.61 ***	.49***	.49***	.49***
Antismoking Beliefs		-.36***	-.36***	-.36***
Smoker * Ad			-.06**	--
Smoker * Beliefs				-.03
Adjusted Model R^2	.39***	.50***	.51***	.51***

Note: All coefficients in the table are standardized; n = 398. Smoking status and corrective ad are dichotomous variables (1= smoker/0 = nonsmoker; 1= corrective ad exposure/0 = no exposure control)

*** $p < .01$; ** $p < .05$; (one-tailed tests).

Figure 1

Plots of Means for Effects of Corrective Ads on Antismoking Belief Themes

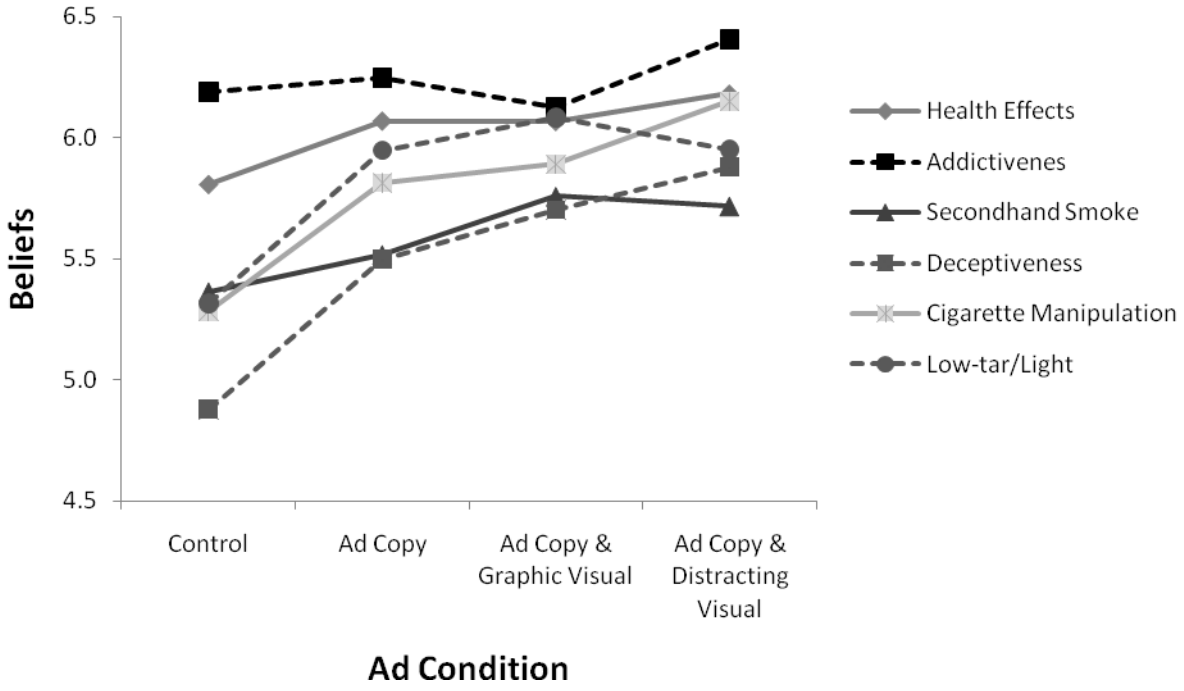
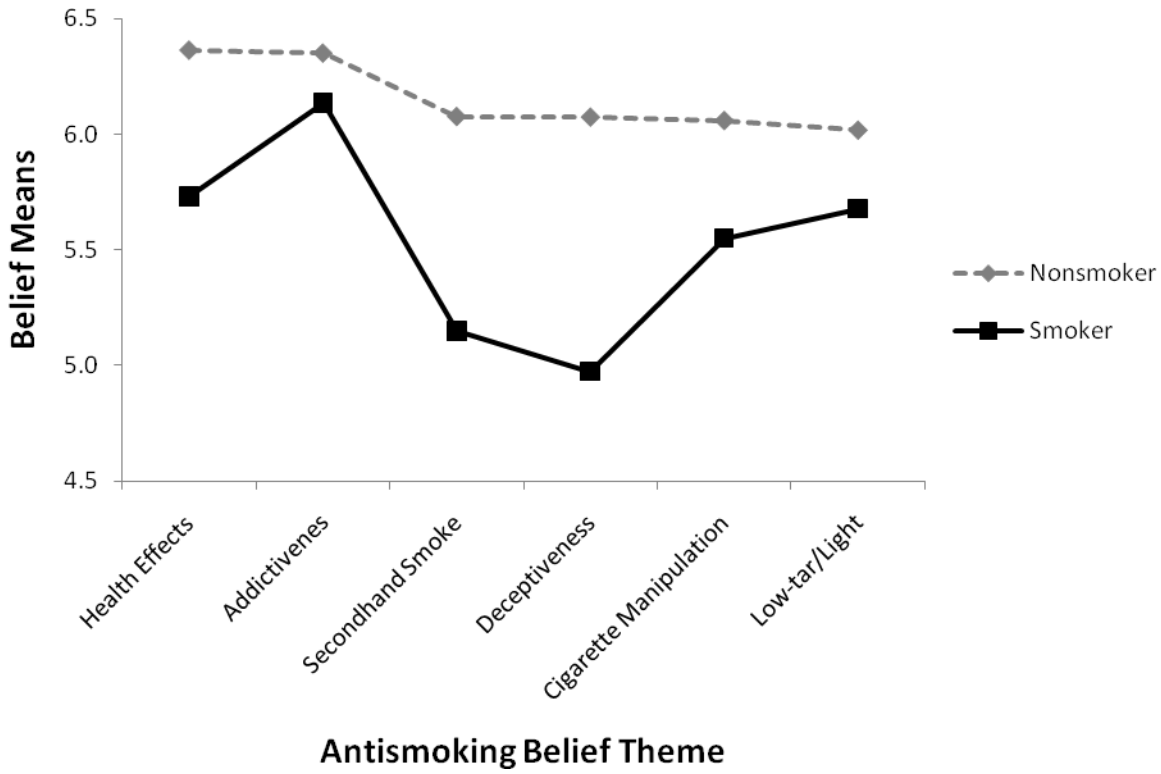


Figure 2

Plots of Means for the Interaction of Smoker Status and Antismoking Beliefs



Appendix A

Ad Copy with Distracting Visuals used in the Main Study

For decades, we deliberately misled the American Public about the health effects of smoking.

A Federal District Court is requiring us to make this statement:

We told you that smoking and secondhand smoke were not dangerous and that smoking was not addictive. We falsely marketed "light" and "low-tar" cigarettes as less harmful than regular cigarettes to keep smokers from quitting - even when we knew they were not.

Here's the truth:

- Smoking kills 1200 Americans every day from cancer, heart attacks, and many other illnesses. It damages almost every organ in the body.
- Smoking is very addictive and therefore very hard to quit. We even manipulated cigarettes by adding things like ammonia to make them more addictive.
- There is no health benefit from smoking "light," "low-tar," "ultra-light," "mild," or "natural" cigarettes.
- Secondhand smoke is a proven cause of cancer, heart attacks, and other illnesses. It kills more than 38,000 Americans each year.

Paid for by Altria (Philip Morris) under order of a Federal District Court

Altria

Appendix B

Ad Copy with Graphic Visuals used in the Pilot and Main Studies

For decades, we deliberately misled the American Public about the health effects of smoking.

A Federal District Court is requiring us to make this statement:

We told you that smoking and secondhand smoke were not dangerous and that smoking was not addictive. We falsely marketed "light" and "low-tar" cigarettes as less harmful than regular cigarettes to keep smokers from quitting - even when we knew they were not.

Here's the truth:

- Smoking kills 1200 Americans every day from cancer, heart attacks, and many other illnesses. It damages almost every organ in the body.
- Smoking is very addictive and therefore very hard to quit. We even manipulated cigarettes by adding things like ammonia to make them more addictive.
- There is no health benefit from smoking "light," "low-tar," "ultra-light," "mild," or "natural" cigarettes.
- Secondhand smoke is a proven cause of cancer, heart attacks, and other illnesses. It kills more than 38,000 Americans each year.

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Appendix C

Measures and Reliabilities of Antismoking Beliefs Associated with *US v. Philip Morris USA*

Health effects (Pilot Study α = .82, Main Study α = .88):

1) Cigarette smoking causes lung cancer.
2) It is not likely that regular cigarette smoking will lead to heart disease.*
3) Cigarette smoking affects respiratory health and causes diseases such as emphysema.
4) Smoking by pregnant women increases the risks for fetal injury, premature birth, and low birth weight.
5) Cigarette smoking is not related to the chance of stroke.*
6) In general, smokers are no more likely to develop serious diseases, like lung cancer or heart disease, than non-smokers.*
7) Cigarette smoking causes many diseases, including lung cancer, several other cancers, coronary heart disease, and several other respiratory diseases and conditions.
8) In general, smokers are as healthy as non-smokers.*

Low Tar and Light cigarettes (Pilot Study α = .93, Main Study α = .91)*

1) It is safer to smoke "low tar," "light," "ultra light," "natural," and "mild" cigarettes than it is regular brands.
2) Compared to regular cigarette brands, there are definite health benefits from smoking "low tar," "light," "ultra light," "mild," or "natural" cigarettes.
3) Compared to regular cigarette brands, "low tar," "light," "ultra light," and "mild" cigarettes reduce the chance of diseases related to smoking.
4) Smoking cigarettes with lower tar and nicotine levels are safer to one's health than are regular cigarettes.
5) Smoking cigarettes with low tar and low nicotine levels provides benefits to health over smoking regular cigarettes.
6) Light cigarettes are less harmful than regular cigarettes.
7) Smokers of light cigarettes take in less tar than smokers of regular cigarettes.
8) People smoking a cigarette labeled "light" will absorb just as much or more tar, nicotine, and carbon monoxide as when smoking a regular cigarette.*

Second-hand smoke (Pilot Study α = .89, Main Study α = .94)

1) Breathing smoke from someone else's cigarette is harmful.
2) Second hand smoke is dangerous to nonsmokers
3) Second hand smoke is not as dangerous as people make it out to be.*
4) Secondhand smoke kills people.
5) Exposure to secondhand smoke does not cause lung cancer in non-smokers.*
6) Exposure to secondhand smoke can cause heart disease in non-smokers.
7) Secondhand smoke does not cause disease and poor health in children.*
8) In children, secondhand smoke damages the lungs and causes sudden infant death syndrome (SIDS), respiratory and ear infections, and more severe asthma.

Tobacco companies' manipulation of cigarettes (Pilot Study α = .81, Main Study α = .87)

1) Tobacco companies manipulated the design of their cigarettes to increase consumers' addiction.
2) Tobacco companies control the amount and form of nicotine delivery in their cigarettes.
3) Tobacco companies did not intentionally influence the level of nicotine received from smoking cigarettes.*
4) I do not believe that tobacco companies purposely design cigarettes so that they provide an addictive dose of nicotine.*
5) Tobacco companies manipulate cigarettes to make them more addictive.

Appendix C, cont.

Addictiveness (Pilot Study α = .78, Main Study α = .75):
1) Smoking is addictive.
2) Cigarettes and other forms of tobacco are not addicting.*
3) Nicotine is a drug that causes addiction to tobacco.
4) Nicotine is physically addictive.
5) The factors that lead to tobacco addiction are similar to those that lead to heroin and cocaine addiction.

Tobacco company deceptiveness (Pilot Study α = .90, Main Study α = .96):
1) Tobacco companies try to get young people to start smoking.
2) Tobacco companies mislead young people into believing smoking is okay.
3) Tobacco companies use deceptive advertising and promotion to influence the perception of smoking to seem "cool" and "socially desirable."
4) Tobacco companies mislead consumers on the effects of smoking on their health and others around them.
5) Tobacco companies encourage people to start smoking.
6) Tobacco companies have used deceptive practices to get people hooked on smoking.

Main Study Measures and Manipulation Checks:

Perceived Relevancy of the Visual (**Main Study α = .87**):
1) It makes sense for these pictures to be shown with the text used in the ad
2) I think that the pairing of these pictures with the text in the ad is appropriate
3) I think the pictures shown in the ad are relevant to the text in the ad

Perceived Visual Distraction:
I feel that the pictures distract me from the message of the ad (endpoints of "Strongly disagree – Strongly agree")

Overall Attitude toward Smoking (**Main Study α = .96**):
"In general, my attitude toward smoking cigarettes is…." (endpoints of "Unfavorable - Favorable"; "Negative - Positive"; "Bad - Good")

Smoking Status: How many cigarettes have you smoked in your entire life?
During the past 30 days, on how many occasions did you smoke cigarettes?
(Participants were classified as smokers if they had smoked more than 100 cigarettes in their life and had smoked a cigarette within the past 30 days)

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* These items are reverse coded. All the low tar and light cigarette items (except the last) are reverse coded in order to make their direction consistent with the other belief theme items. Thus, for all scales higher means indicate stronger agreement with the belief theme (i.e., higher means indicate greater agreement with adverse health effects from smoking, the addictiveness of smoking, etc.).