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Tobacco Industry Manipulation Messages in Anti-Smoking Public Service Announcements: The Effect of Explicitly Versus Implicitly Delivering Messages

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Abstract

Message content in anti-smoking public service announcements (PSAs) can be delivered explicitly (directly with concrete statements) or implicitly (indirectly via metaphor), and the method of delivery may affect the efficacy of those PSAs. The purpose of this study was to conduct an initial test of this hypothesis, using tobacco industry manipulation PSAs in adolescents. A 2 (*age*: 11-14 years old; 15-17 years old) \times 2 (*message delivery*: implicit, explicit) mixed model design was used. There was a significant main effect of message delivery: Tobacco industry manipulation PSAs that delivered their messages explicitly were associated with stronger levels of smoking resistance self-efficacy compared to tobacco industry manipulation PSAs that delivered their messages implicitly. No significant main effects of age were found nor were any interactions between age and message delivery. These results suggest that message delivery factors should be taken into account when designing anti-smoking PSAs.

Televised anti-smoking public service announcements (PSAs) are a part of successful smoking prevention campaigns aimed at adolescents (for a review, see National Cancer Institute [NCI], 2008). Anti-smoking PSAs employ several different anti-smoking messages (Goldman & Glanz, 1998), for example, the tobacco industry is deceptive; smoking is addictive; and smoking has long term health effects. However, there is little agreement about which messages are most effective at changing adolescents' smoking behavior (see Beaudoin, 2002; Beiner, 2002; Beiner, Ji, Gilpin, & Albers 2004; Goldman & Glantz, 1998; Pechmann & Reibling, 2000, 2006; Pechmann, Zhao, Goldberg, & Reibling, 2003; Sutfin, Szykman, & Moore, 2008).

This lack of convergence is a particular problem for PSAs that use tobacco industry manipulation messages.¹ These PSAs “seek[s] to delegitimize the tobacco industry and deglamorize smoking. Industry manipulation advertisements make the industry the problem

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by exposing its predatory business practices,” (p. 774; Goldman & Glantz, 1998). Tobacco industry manipulation PSAs are thought to capitalize on adolescents' developmental need to exert independence by making them aware of the industry's attempts to manipulate them, i.e., that if they decide to smoke, they are not acting independently (Goldman & Glantz, 1998). As such, tobacco industry manipulation PSAs seem to operate through the principles of psychological reactance (Brehm & Brehm, 1981). Adolescents' freedom to make an independent decision to smoke is compromised by the tobacco industry through deceptive advertising; anti-smoking PSAs that point this out, then, should push adolescents away from smoking. Unfortunately, though, despite being based in developmental theory, anti-smoking PSAs that use tobacco industry manipulation messages are not consistently well-received by adolescents or effective at curbing adolescent smoking (American Legacy Foundation, 2002; Goldman & Glantz, 1998; cf., Pechmann & Reibling, 2006; Sutfin et al., 2008). This lack of convergence makes it difficult to know whether anti-smoking PSAs that use tobacco industry manipulation messages should be used or developed (see footnote 1).

However, the *method* used to deliver tobacco industry manipulation messages in anti-smoking PSAs has not yet been examined, but could be related to their efficacy. In particular, the extent to which anti-smoking messages are delivered implicitly (i.e., indirectly) or explicitly (i.e., directly) (see Tellis, 2004) has not been addressed. The extent to which the language used in health communications is explicit is related to level of psychological reactance on the part of adolescent audiences (e.g., Miller et al., 2007). Grandpre and colleagues (2003) constructed generic anti-smoking messages that differed in whether they were implicitly or explicitly delivered to 4th, 7th, and 10th graders. Anti-smoking messages delivered explicitly were associated with significantly stronger future smoking intentions compared to messages delivered implicitly only for 10th graders; no differences between implicit and explicit delivery were found for 4th or 7th graders. Although message theme was not specified in this study, the results suggest that reactance to anti-smoking PSAs that emphasize tobacco industry manipulation might be more pronounced if the message is conveyed explicitly instead of implicitly. As such, tobacco industry manipulation PSAs that deliver their messages explicitly should be *more* effective than those that deliver their messages implicitly, especially among older adolescents. That is, to the extent that tobacco industry manipulation messages generate reactance (i.e., adolescents “react” against the purported wishes of the tobacco industry to get them to smoke by choosing to not smoke), their effectiveness would be increased if those messages are delivered explicitly (i.e., if those tobacco industry manipulation messages are explicit, they will generate greater reactance which in this case means pushing adolescents further from smoking). This study tested whether tobacco industry manipulation PSAs that differ in the way that the anti-smoking message is delivered (either explicitly or implicitly) is differently associated with smoking resistance self-efficacy, an important predictor of adolescent smoking (Choi, Gilpin, Farkas, & Pierce, 2001). Age was examined as a moderator, given that older adolescents may be more prone to reactance than younger adolescents (Grandpre et al., 2003). We hypothesized that explicitly delivered messages would be associated with higher levels of smoking resistance self-efficacy compared to implicitly delivered messages, and that these effects would be largest for older adolescents.

Methods

Procedures

This study used a 2 (*age*: 11-14 years old; 15-17 years old) × 2 (*message delivery*: implicit, explicit) mixed model design; age was a between subjects factor and message delivery was a

¹Anti-smoking PSAs that use tobacco industry manipulation messages represent a sizable proportion of all anti-smoking PSAs. For example, as of this writing, the Media Campaign Resource Center at the Centers for Disease Control maintains a catalogue of 641 televised PSAs that use a variety of anti-smoking messages; 132 (20%) PSAs in this catalogue use tobacco industry manipulation messages.

within subjects factor. The data for this study were drawn from a larger laboratory-based study that had the goal of understanding how anti-smoking PSAs exert their effects on adolescents (for methodological details see Shadel, Fryer, & Tharp-Taylor, 2009). All participants attended three 90 minute group sessions, with about one week between sessions. Session 1 tasks included informed consent and completion of baseline questionnaires. Session 2 tasks consisted of participants rating images of actors drawn from each of the PSAs. Session 3 tasks included participants viewing each PSA and rating their smoking resistance self-efficacy after exposure to each one (the PSAs were shown to participants in random orders). At the end of Session 3, participants were debriefed, compensated with up to \$60 worth of gift certificates, and provided with written smoking prevention materials (National Institute on Drug Abuse, 2000). Data for the current study are drawn from Session 3.

Participants

This study was approved by the Human Subjects Protection Committee at the RAND Corporation. Adolescents were recruited using print media advertising and from a local community center in Pittsburgh, PA. The study was marketed as a television advertising study; none of this advertising material mentioned cigarettes, smoking, or anti-smoking advertising (no other cover story was provided). The sample ($n = 110$) was 55% female with diverse ethnic representation (38% Caucasian; 53% African-American; 2% Asian; 2% Native American; and 5% multi-ethnic); their M age was 14.1 ($SD = 1.8$). A total of $n = 22$ (18%) reported smoking at least a puff of a cigarette in the past; none were current smokers.

Public Service Announcements: Coding and Categorization

Public service announcements—The PSAs used in this study were drawn from the catalogue maintained by the Center for Disease Control's Media Campaign Resource Center. A total of 31 PSAs were independently viewed and sorted into one of the following anti-smoking message categories by three trained judges (see Goldman and Glantz, 1998): industry manipulation; secondhand smoke; addiction; cessation; youth access; short term effects; long term effects; and romantic rejection. The interrater reliability was .814. Eleven PSAs using tobacco industry manipulation messages were examined in this study. The PSAs used actors who were diverse in terms of age, gender, race, and ethnicity. All of the PSAs had a negatively valenced emotional tone and/or contained disturbing imagery.

A similar three judge rating procedure was used to determine whether the tobacco industry manipulation PSAs communicated their message content implicitly (i.e., defined as conveying the anti-smoking message indirectly through the use of metaphor and imagery; no direct arguments or attributable claims are made) or explicitly (i.e., defined as conveying the anti-smoking message directly through clear, direct statements; the statements may be supported with arguments or evidence) (see Tellis, 2004). Interrater reliability for this coding procedure was .855. As such, eight implicit PSAs were compared with three explicit PSAs.²

Dependent Measure

Smoking resistance self-efficacy was assessed after exposure to each PSA with the following item, "This PSA gives me the confidence to resist smoking if a friend offers me a cigarette" (1 = *Definitely No*; 10 = *Definitely Yes*). This item was taken from the items used by Ellickson

²The remaining 20 PSAs were reliably categorized into the short- and long-term smoking effects categories (see Shadel et al., 2009). The raters also categorized these 20 PSAs as to whether their messages were delivered implicitly or explicitly. Although using these PSAs for comparison purposes would have been optimal for the current study, two factors prevented them from being included in the study design: 1) these 20 PSAs were not reliably categorized as either implicit or explicit (.605); and 2) to the extent that the categorizations were reliable, no short term consequences PSAs were classified as having an explicit message and only one long term consequences PSA was categorized as having an implicit message.

and colleagues (Ellickson & Hays, 1992). Responses for each PSA were averaged within each of the design cells to produce a total smoking resistance self-efficacy score for each cell. Higher scores reflected stronger smoking resistance self-efficacy.

Results

Several measures were collected and explored as possible covariates, including gender, race, ethnicity, prior smoking experience, smoking attitudes, future smoking intentions, previous 12 month exposure to cigarette advertising and smoking in the movies, and previous 12 month exposure to anti-smoking advertising. None of these variables were significantly related to the dependent variable (all p 's > .06) and as such, are not considered further.

A 2 (age: younger [11-14], older [15-17]) \times 2 (message delivery: implicit, explicit) repeated measures GLM analysis was used to compare smoking resistance self-efficacy ratings between tobacco industry manipulation PSAs that communicated their message implicitly and explicitly (within subjects factor) and whether age was an important moderator (between subjects factor). Figure 1 plots the mean smoking resistance self-efficacy values for message delivery between the different age groups. The expected interaction between age and message delivery was not significant ($F = .024$, $df = 1, 108$, $p = .878$). There were no significant main effects of age ($F = .428$, $df = 1, 108$, $p = .515$). However, there was a significant main effect of message delivery ($F = 80.421$, $df = 1, 108$, $p < .0001$; partial eta squared = .427). Tobacco industry manipulation PSAs that delivered their messages explicitly were associated with stronger levels of smoking resistance self-efficacy compared to tobacco industry PSAs that delivered their messages implicitly.

Discussion

This study examined whether the way that tobacco industry manipulation messages are delivered in anti-smoking PSAs affects their efficacy. Tobacco industry manipulation PSAs communicate the message that the industry uses deceptive advertising practices to push adolescents toward smoking (Goldman & Glantz, 1998). As such, this class of PSAs would seem to capitalize on psychological reactance (Brehm & Brehm, 1981): adolescents' independent decisions to smoke are compromised because the tobacco industry uses deceptive or misleading advertising practices. Anti-smoking PSAs that utilize tobacco industry manipulation messages, however, are not uniformly well-received by adolescents or uniformly effective at curbing adolescent smoking (Pechmann & Reibling, 2006; Sutfin et al., 2008; cf., American Legacy Foundation, 2002; Goldman & Glantz, 1998).

One factor that may help to explain these conflicting results may be that the extent to which tobacco industry manipulation messages are delivered implicitly or explicitly. Messages that are delivered explicitly may provoke a greater level of reactance, especially in older adolescents (Grandpre et al., 2003; Miller et al., 2007). Thus, tobacco industry manipulation PSAs, which capitalize on reactance theory in their messages, would be expected to be *more* effective if they deliver their messages *explicitly*, particularly in older adolescents. Our results are partially consistent with reactance theory and with previous findings: anti-smoking messages in tobacco industry manipulation PSAs delivered explicitly were more effective than those delivered implicitly. These results are consistent with studies which have found that explicitly delivered conclusions are associated with greater persuasion compared to implicitly delivered conclusions (Sawyer & Howard, 1991). We failed to find a significant effect of age. Although this finding was unexpected, it is important to note that the capacity to cognitively process televised information matures early so that implicitly conveyed material is understood by the time children reach adolescence (Mares, 2006). The fact that we failed to find age-related

differences between implicit and explicitly delivered anti-smoking messages is unsurprising in this context.

Limitations to this study need to be considered. First, this study used a correlational design, so strong causal interpretations are not possible. Second, the study did not include a group that was exposed to PSAs that used different anti-smoking messages; the observed findings may not be limited to tobacco industry manipulation messages. Third, although smoking resistance self-efficacy is a predictor of adolescent smoking (Choi et al., 2001) we did not measure actual smoking behavior. Fourth, smoking resistance self-efficacy was assessed with a single item; a longer scale that assessed different facets of self-efficacy may have yielded different results. Finally, our sample was diverse in its representation of African-Americans and smoking prevention efforts need to account for racial and ethnic diversity (see NCI, 2008). Nonetheless, our sample is limited in its representation of adolescents of other ethnic groups and adolescents with more extensive smoking histories.

In summary, these results show that tobacco industry manipulation PSAs are more effective when they deliver their messages explicitly instead of implicitly. Future research should examine whether or not these effects extend to actual smoking behavior, and whether these findings extend to anti-smoking PSAs that utilize other types of messages.

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Figure 1. Smoking resistance self-efficacy scores as a function of younger (ages 11-14) and older (ages 15-17) adolescents and PSA message delivery method