Changing Attitudes Toward Smoking and Smoking Susceptibility Through Peer Crowd Targeting: More Evidence From a Controlled Study

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Abstract

Peer crowd identification consistently predicts an adolescent's smoking behavior. As such, several interventions have targeted adolescents and young adults based on their identification with a specific crowd (e.g., Hipsters). This study uses a controlled experimental design to isolate and test the effect of peer crowd targeting in an antismoking ad on antismoking attitudes and smoking susceptibility. Two hundred and thirty-nine adolescents, age 13–15 years, completed a baseline survey and then viewed an antismoking ad targeting one of eight crowds; 1 week later they completed a posttest. Participants were assessed on antismoking attitudes and smoking susceptibility. Adolescents who strongly identified with the crowd targeted by the ad reported stronger antismoking attitudes and lower levels of smoking susceptibility. Those who disidentified with the crowd targeted in the ad exhibited not statistically significant increases in smoking susceptibility and weaker antismoking attitudes at posttest. These findings indicate that targeting youths based on their peer crowd is a useful strategy for antismoking interventions. Additional research should further examine whether youths who disidentify with the targeted crowd in an ad exhibit reactance against the message.

Cigarette smoking varies by adolescent peer crowd. For example, adolescents who identify with crowds such as "Skaters," "Hip-hop," and "Hipsters" are more likely to smoke than their peers who identify with crowds such as "Smart Kids" (Fuqua et al., 2012; Lee, Jordan, Djakaria, & Ling, 2013; Ling & Jordan, 2011; Ling et al., 2014; Sussman, Pokhrel, Ashmore, & Brown, 2007). It is not surprising that an increasing number of antismoking campaigns have adopted approaches that target specific peer crowds[1] (for a review see Moran & Sussman, 2014a). While the truth® campaign focused more broadly on "outside-the-mainstream" youth (Evans, Wasserman, Bertolotti, & Martino, 2002), several recent campaigns have targeted specific crowds. The Commune campaign (http://

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[1]This approach has also been called social branding (Ling et al., 2014).

jointhecommune.com) in San Diego, CA, targeted the Hipster crowd by appealing to key crowd values such as social justice, authenticity, and commitment to the local art community via a campaign delivered in nightlife settings frequented by the crowd. Campaign-exposed individuals who most strongly identified with the Hipster crowd showed a significant reduction in rates of smoking (Ling et al., 2014; Ling & Jordan, 2011). Other campaigns that have shown promising effects include the Virginia Foundation for Healthy Youth's SYKE (alternative crowd: sykeva.com), 2UP2DOWN (Hip-hop crowd: 2up2downva.com), and Southern Nevada Health District's XPOZ (hardcore/punk crowd: xpozlv.com) campaigns (Jordan, 2012).

The current study complements community-based studies of peer crowd targeted campaigns by using a controlled experimental design. We extend our earlier analysis (Moran & Sussman, 2014b), which found that adolescents exposed to peer crowd targeted ads were more likely to agree with specific antismoking statements presented in the ads, in two ways. First, we examine changes in antismoking attitudes and smoking susceptibility—two outcomes associated with smoking behavior. Additionally, we explore the impact of disidentification with a targeted crowd on these outcomes, examining whether this causes a boomerang effect. In the present study, we hypothesize that adolescents who identify more strongly with the peer crowd targeted by an antismoking ad will (a) have stronger antismoking attitudes and (b) be less susceptible to smoking.

METHODS

We conducted an online study where adolescents were exposed to an ad targeting one of eight peer crowds. We assessed whether strength of identification with the targeted crowd was associated with antismoking attitudes and smoking susceptibility at a posttest given one week later. (Moran & Sussman [2014b] provides full details and a more in-depth description of the study design and development—including images of the stimulus materials.)

Recruitment Procedures

During spring of 2011, participants were randomly selected and recruited via e-mail from a panel maintained by a data collection firm (Qualtrics). This panel contains approximately 70,000 adolescents aged 12–15 years and is sociodemographically similar to the United States. Parental consent and participant assent were obtained. All procedures were approved by the researchers' university institutional review board.

Experimental Materials

A pretest was conducted in 2010 to identify the relevant peer crowds and produced eight crowds (academics, deviants, elites, emo/goth, hip-hop, musicians, rockers, and skaters) that demonstrated consistent and clear stylistic profiles and thus could be targeted in an ad. We then produced eight print ads targeting each of the crowds by featuring a male and female adolescent representing each crowd (e.g., skater crowd with skateboards and skater-style clothing). Ads were modified from a truth® campaign ad. A manipulation check demonstrated that each ad effectively represented the crowd it was meant to target.

Experimental Procedure

Participants ($N = 241$) completed a baseline survey and posttest. To ensure sufficient variance in levels of identification with the targeted crowd, participants selected which crowd they most identified with and were then randomized to view an ad targeting that crowd or targeting an opposing crowd (identified in the pretest). One week later, participants were sent an e-mail inviting them to take the posttest.

Measures

Identification with targeted crowd—Participants were asked to indicate, on a scale from 0 to 100, how much they identified with each crowd (Moran, Murphy, & Sussman, 2012; Moran & Sussman, 2014b). Scores were transformed to *z*-scores within each participant to indicate how much the participant identified with one crowd relative to all others. A new variable was created to categorize participants into three groups: those who disidentified with the targeted crowd (−1: identification score 1 SD below mean), those who were neutral toward the crowd (0: within 1 SD of mean), and those who identified with the targeted crowd (1: 1 SD above mean).

Outcomes—Attitude toward smoking was measured using items from the Legacy Media Tracking Survey (Farrelly, Davis, Duke, & Messeri, 2002; Niederdeppe, Farrelly, & Haviland, 2004). This measure included items such as "Not smoking is a way to express your independence." Response options ranged from 1 = *strongly disagree* to 7 = *strongly agree*. Items were averaged; higher scores indicate stronger antismoking attitudes. Smoking susceptibility was assessed by asking never smokers ($n = 185$) whether they would smoke a cigarette if their best friend offered them one and whether they thought they would smoke a cigarette at any time in the next year (Pierce, Choi, Gilpin, Farkas, & Merritt, 1996). Respondents were classified as nonsusceptible if they answered "probably not" or "definitely not" to both questions. All others were classified as susceptible.

Data Analysis

Data were analyzed using SPSS 20.0 (IBM Corp., 2011). A chi-squared test and analysis of variance (ANOVA) were used to ensure equivalency of the three groups with respect to age, gender, ethnicity, and previous smoking behavior; no significant differences were found. We used a paired *t*-test and McNemar's test to examine whether disidentifying with the targeted crowd was associated with increased prosmoking attitudes and susceptibility. Between-subjects analysis of covariance (ANCOVA; sum of squares type I to account for unequal group sizes) and logistic regression were used to test the overall effect of identification with the targeted crowd on smoking attitude and susceptibility. All analyses controlled for the pretest value of the outcome and age.

RESULTS

Table 1 presents descriptive statistics for each group (disidentify, neutral, and identify) and the total sample. Analyses showed that identification with the targeted crowd had a significant effect on attitude towards smoking ($F(2, 235) = 5.314$, $p < .01$). Those who more strongly identified with the targeted crowd exhibited stronger antismoking attitudes at

posttest (M_{adj} = 7.453 vs. 8.515 vs. 8.520). Post hoc pairwise comparisons, using a Bonferroni adjustment, showed that differences in posttest means were significant between those who disidentified and those who were neutral ($p < .001$) and between those who disidentified and those who identified ($p < .001$) with the targeted crowd. Strength of identification with the targeted crowd also was associated with decreased susceptibility to smoking at posttest. Compared to those who disidentified with the targeted crowd, those who were neutral (odds ratio [OR] = .217 [95% confidence interval (CI) = .068–.691], $p < .05$) and those who identified with the targeted crowd (OR = .099 [95%CI = .026–.384], $p < .001$) were less likely to be susceptible to smoking. Additionally, those who identified with the targeted crowd were marginally less susceptible to smoking than those who were neutral (OR = .458 [95%CI = .188–1.114], $p < .10$). Disidentifying with the targeted crowd did not significantly increase prosmoking attitudes or susceptibility.

CONCLUSIONS

This study found that using peer crowd targeting in an anti-smoking ad significantly impacted two key outcomes that predict smoking behavior. The largest drop in smoking susceptibility was seen among those who identified with the targeted crowd, while those who were neutral toward the targeted crowd also exhibited a decrease. A similar pattern was seen in changes in attitude toward smoking. We did not find a statistically significant change in antismoking beliefs or smoking susceptibility among those who disidentified with the targeted crowd. This may be due to the small sample size of this group; thus, we cannot be sure whether peer-targeted ads would have negative impacts when messages are viewed by members of an unintended crowd. Some work (Berger & Rand, 2008) suggests that when a health message associates a behavior with a certain group, individuals who disidentify with that group will resist the message. Additional studies should further explore this association in the context of peer crowd identification.

These findings have important implications for tobacco control and prevention interventions. Specifically, targeting messages toward specific peer crowds increases the effectiveness of those messages. These findings support our earlier work (Moran & Sussman, 2014b) and are consistent with community-based studies (e.g., Ling et al., 2014). Peer-group targeting is a promising strategy for antismoking interventions due to its effectiveness and efficiency: Peer crowds have specific media use and activity patterns and practitioners can leverage this to efficiently reach the crowd of interest.

Limitations of this study include involving only subjects who have Internet access, and the geographical diversity of the sample which may have resulted in certain peer crowds being overlooked. However, taken together with work that demonstrates the effectiveness of peer-crowd-targeted campaigns in community settings, this study demonstrates that this approach holds tremendous potential for impacting the prevalence of tobacco use among adolescents. Due to its targeted nature, this strategy allows antitobacco practitioners to create materials that will appeal to those adolescents at highest risk and to implement those campaigns in relevant targeted media and settings, increasing the efficacy and cost-effectiveness of the intervention.

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TABLE 1

Participant characteristics

	Disidentify With Targeted Crowd (n = 18)	Neutral Toward Targeted Crowd (n = 166)	Identify With Targeted Crowd (n = 57)	Total (N = 241)
Age				
13 years old	33.3%	35.5%	35.1%	35.3%
14 years old	38.9%	39.8%	24.6%	36.1%
15 years old	27.8%	24.7%	40.4%	28.6%
Ethnicity[a]				
American Indian or Alaskan Native	0.0%	1.2%	0.0%	0.8%
Asian	22.2%	5.4%	1.8%	5.8%
Black or African American	11.1%	11.4%	8.8%	10.8%
Hispanic or Latino	11.1%	12.0%	12.3%	12.0%
Native Hawaiian or Other Pacific Islander	0.0%	0.6%	0.0%	.4%
White	55.6%	67.5%	73.7%	68.0%
Other	0.0%	1.8%	3.5%	2.1%
Female	55.6%	50.0%	43.9%	49.0%
Ever tried smoking	27.8%	20.5%	29.8%	23.2%
Susceptible to smoking (pretest value)[b]	44.4%	28.3%	38.6%	32.0%
Susceptible to smoking (posttest value)[b]	55.6%	21.7%	15.8%	22.8%
Attitude toward smoking (pretest mean and SD)[c]	7.01 (2.56)	8.08 (1.80)	8.35 (1.67)	8.07 (1.86)
Attitude toward smoking (posttest mean and SD)[c]	6.74 (2.19)	8.54 (1.82)	8.68 (1.68)	8.44 (1.88)

Note. All values are unadjusted.

[a]Cells may not add to 100% because participants could select multiple ethnicities.

[b]Among 185 participants who had never tried smoking.

[c]Scores range from 1 to 10; higher values indicate stronger antismoking attitudes.