



# Social identity and support for counteracting tobacco company marketing that targets vulnerable populations



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## ABSTRACT

**Rationale:** Tobacco companies use advertising to target vulnerable populations, including youth, racial/ethnic minorities, and sexual minorities.

**Objective:** We sought to examine how personal identity affects support for population-specific anti-smoking advertisements that could serve as countermeasures to industry marketing practices.

**Methods:** In 2014–2015, we surveyed probability phone samples of adults and adolescents ( $n = 6,139$ ) and an online convenience sample of adults ( $n = 4,137$ ) in the United States. We experimentally varied the description of tobacco industry marketing practices (no description, general, or specific to a target group). The four prevention target groups were teens; African Americans; Latinos; and gays, lesbians, and bisexuals (GLBs). Participants were either members or non-members of their prevention target group.

**Results:** Support was highest for anti-smoking advertisements targeting teens, moderate for Latinos and African Americans, and lowest for GLBs. In-group members expressed higher support than out-group members when anti-smoking advertisements targeted African Americans, Latinos, and GLBs (all  $p < 0.05$ ). However, when teens were the target prevention group, in-group members expressed lower support than out-group members ( $p < 0.05$ ). The description of industry marketing practices did not have an effect. Results were similar across the phone and online studies.

**Conclusions:** Our findings suggest that the public strongly supports advertisements to prevent smoking among teens, but support for similar efforts among other vulnerable populations is comparatively low. Anti-smoking campaigns for vulnerable populations may benefit from a greater understanding of the role of social identity in shaping public support for such campaigns.

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## 1. Introduction

The leading preventable cause of death in the United States is tobacco use (CDC, 2014). However, smoking rates and consequences are not distributed evenly across the population. Youth are by far the most likely to initiate smoking (Chen and Jacques-Tiura, 2014). Among adults, the highest rates of smoking are among low-income individuals, people with mental health problems, and gays,

lesbians, and bisexuals (GLBs; Annamalai et al., 2015; Jamal et al., 2015; Lee et al., 2009). The incidence of lung cancer is substantially higher among African Americans than whites, with the majority of cases being attributable to cigarette smoking (Haiman et al., 2006). Among males over age 50, African Americans have a higher rate of smoking-attributable mortality than whites (Ho and Elo, 2013). Given that Hispanics are a fast-growing segment of the U.S. population, smoking and its related health consequences in this group are of particular interest (Johnson and Lichter, 2008).

The tobacco industry has historically targeted vulnerable populations with marketing that may have contributed to disparities in smoking and subsequent health problems. For example, R.J. Reynolds Tobacco Company developed Project SCUM (Sub-Culture Urban Marketing) in 1995 as a strategy for marketing Camel and

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Red Kamel cigarettes to gay residents and homeless individuals in the San Francisco area (Stevens et al., 2004; Washington, 2002). Philip Morris has targeted the Hispanic community in the U.S. since 1988 by sponsoring and distributing cigarettes at cultural and sporting events (Washington, 2002). Tobacco companies have also targeted African Americans by advertising in major African American publications such as *Ebony* and making large donations to advocacy organizations such as the National Association for the Advancement of Colored People (Anderson, 2011; Washington, 2002).

The Internet has provided tobacco companies with new opportunities to reach vulnerable populations beyond traditional marketing strategies and media. Online e-cigarette marketing to youth exemplifies the utility of this platform. As of 2014, online vendors were selling 7,764 flavors of e-liquid, including candy and other sweet flavors that may be particularly appealing to children and adolescents (Zhu et al., 2014). The unregulated nature of the Internet could enable further targeted marketing of tobacco products to minority populations (Liang et al., 2015; Ribisl, 2003).

Anti-smoking campaigns that target vulnerable groups can be effective countermeasures to industry marketing practices. Public support allows agencies to implement programs that target diverse groups, and the lack of that support can imperil new programs (Sun, 2014). Furthermore, public support for anti-smoking advertising campaigns may increase their impact (Samu and Bhatnagar, 2008). Targeted anti-smoking campaigns that have public support may also encourage interpersonal communication among community members about smoking behaviors, potentially increasing campaign effectiveness (Hall et al., 2015; Sun, 2014). Finally, within targeted communities, support by key opinion leaders may be especially important to the viability and longevity of anti-smoking campaigns (Howard et al., 2000; Valente and Pumpuang, 2006).

Support for anti-smoking advertisements may vary by social identity. According to social identity theory, social interactions make people aware of similarities to and differences with others when social categories, such as race and sexual orientation, become salient (Hornsey, 2008). When social categories are salient, people enhance similarities within their own group and differences between their group and other groups (Hogg and Reid, 2006). They also try to protect their own group and improve its status in order to maintain a positive social identity (Major et al., 2013). Social identity theory can provide insights about health and well-being (Haslam et al., 2009). For example, if group identity is made salient in health-related campaign materials, in-group members' desire to improve the health of their peers may enhance support for that health campaign.

Drawing on some aspects of social identity theory, we hypothesized that support for targeted anti-smoking campaigns is higher among in-group members of a target population compared to out-group members. We also hypothesized that anti-smoking advertisements targeting teens would elicit the greatest support because people view youth as a vulnerable group that society should protect, and many are already aware that the tobacco industry targets youth (Henriksen et al., 2004; Landman et al., 2002; Slater et al., 2007). We examined these hypotheses in two national experiments.

## 2. Experiment 1

### 2.1. Methods

**Sample.** From September 2014 to June 2015, the Carolina Survey Research Laboratory (CSRL) conducted phone surveys with a probability sample of 5,014 U.S. adults ages 18 or older identified

using random digit dial landline and cell phone frames. Additional information on sampling and methodology is available elsewhere (Boynton et al., 2016). Interviewers obtained verbal consent from adult participants. CSRL also conducted a phone survey with a probability sample of 1,125 adolescents aged 13 to 17 from November 2014 to June 2015. Interviewers obtained verbal parental consent and adolescent assent. The survey included smokers and non-smokers in order to capture support for targeted anti-smoking advertisements among a variety of stakeholders. The Institutional Review Board at the University of North Carolina approved both studies.

**Procedures.** We randomly assigned participants to one of 24 conditions in a  $3 \times 4 \times 2$  between-subjects factorial experiment. The first factor was *industry marketing practices*: no statement about these practices, a general statement (i.e., "Cigarette companies target certain groups with advertising"), or a population-specific statement (e.g., "Cigarette companies specifically target [teens; gays, lesbians, and bisexuals; African Americans; or Latinos] with advertising"). The second factor was the *prevention target group* that anti-smoking advertisements would focus on: teens, GLBs, African Americans, or Latinos. The third factor was *in-group membership* (i.e., whether the respondents themselves were teens, GLBs, African Americans, or Latinos). We assigned participants, in the order above, to respond about their own group. Participants who were not members of any of the four prevention target groups responded about a randomly-assigned group. Assignment to the industry marketing practice condition was also random.

**Measures.** The survey assessed support for anti-smoking advertisements with the question, "How much would you support organizations like the CDC running anti-smoking advertisements for [prevention target group]?" The response options were "not at all", "a little", "somewhat", or "a lot" (coded as 1–4). The survey also measured sex, age, participant education (adults), maternal education (adolescents), income (adults), race, ethnicity, sexual orientation (adults), numeracy, and smoking status. We defined adult current smokers as those who had smoked at least 100 cigarettes in their lifetime and currently smoked every day or some days and adolescent current smokers as those who had smoked at least one cigarette in the past 30 days (Arrozola et al., 2015; Davis et al., 2009).

**Data analysis.** We analyzed data from the phone and online surveys separately. We excluded 202 participants who did not respond to the primary outcome measure, resulting in an analytic sample of 5,937 participants. Missing data were more common for people in the GLB than teen prevention target group conditions and for in-group than out-group members (both  $p < 0.001$ ). To check whether random assignment created demographically equivalent groups by industry marketing practices (no statement, general, or specific), we used chi-square tests and *t*-tests. Among "out-group" members (i.e., adults who were not GLBs, African-Americans, or Latinos), we used the same procedures for checking successful randomization into prevention target group. Five demographic characteristics of adult participants (sex, race, ethnicity, education, and sexual orientation) and four demographic characteristics of adolescent participants (sex, race, ethnicity, and maternal education) were equivalent across experimental conditions (11 of 11 tests, all  $p > 0.05$ ).

We used  $3 \times 4 \times 2$  between-subjects ANOVA to examine the effects of industry marketing practices (no statement, general, or specific), prevention target group (teens, GLBs, African Americans, or Latinos), and in-group membership on support for anti-smoking advertisements. Statistical analyses used SAS (v 9.4) and a critical alpha of 0.05, except for post-hoc pairwise *t*-tests that used Holm-Bonferroni adjustments to critical alpha.

## 2.2. Results

About half of the adult phone survey participants were male (47%), had no college degree (56%), and had household incomes less than \$50,000 per year (54%; Table 1). A minority of adult participants were current smokers (23%). Among adolescents, about half were male (50%), a quarter had low numeracy (27%), and few were current smokers (4%).

**Prevention target group.** Prevention target group affected support for anti-smoking advertisements ( $p < 0.001$ ; Table 2). Participants expressed higher support for anti-smoking advertisements aimed at teens ( $M = 3.48$ ,  $SD = 0.85$ ) than Latinos ( $M = 3.06$ ,  $SD = 1.14$ ;  $p < 0.001$ ), similar support for Latinos and African Americans ( $p = 0.31$ ), and higher support for African Americans ( $M = 3.01$ ,  $SD = 1.14$ ) than GLBs ( $M = 2.50$ ,  $SD = 1.27$ ;  $p < 0.001$ ).

**In-group membership.** Support varied by group membership so that in-group members ( $M = 3.27$ ,  $SD = 1.01$ ) expressed more support for anti-smoking advertisements than out-group members ( $M = 2.97$ ,  $SD = 1.19$ ;  $p < 0.001$ ; Table 2). The effect of group membership was moderated by prevention target group ( $p < 0.001$ ). Post-hoc analyses showed that support for anti-smoking advertisements was higher among in-group members than out-group members for African Americans ( $p < 0.001$ ), Latinos ( $p < 0.001$ ), and GLBs ( $p < 0.01$ ; Fig. 1). In contrast, support was

**Table 1**  
Participant characteristics.

	Adult Phone ( $n = 5,014$ )	Adolescent Phone ( $n = 1,125$ )	Adult Online ( $n = 4,137$ )
	%	%	%
Male	47.3	49.9	49.4
Age, years			
13-17	—	100	—
18-25	16.2	—	24.5
26-34	14.9	—	39.8
35-44	15.4	—	19.2
45-54	19.8	—	9.9
55-64	17.9	—	5.6
65+	15.8	—	1.0
Education			
< High school	10.5	4.3	1.0
High school	24.7	16.3	12.5
Some college	20.7	16.9	30.9
Associate's degree	9.9	10.2	12.4
College degree	21.2	31.9	33.7
Master's degree	10.1	16.8	7.5
Professional or doctoral degree	2.9	3.6	2.0
Household income, per year			
\$0 - \$24,999	28.2	—	22.7
\$25,000 - \$49,999	26.2	—	34.5
\$50,000 - \$74,999	19.0	—	23.0
\$75,000 - \$100,000	10.8	—	12.0
> \$100,000 per year	15.8	—	7.8
Race			
White	69.6	80.2	83.0
Black or African American	19.6	10.6	7.6
Native American	2.7	1.6	0.9
Asian	2.1	2.0	5.0
Other	6.0	5.7	3.5
Hispanic	8.6	7.6	8.2
Sexual orientation			
Straight	94.4	—	88.4
Gay, lesbian, or bisexual	3.8	—	11.5
Other	1.8	—	0.1
Current smoker	23.0	3.7	37.8

Note. Maternal education is reported for adolescents. High school includes equivalency certificate. Current smoking is defined for adults as having ever smoked at least 100 cigarettes and currently smoking every day or some days and for adolescents as smoking at least once during the last 30 days.

**Table 2**  
Effects of manipulations on support for anti-smoking ads, Experiment 1.

	df	F
Prevention target group	3	105.36*
In-group membership	1	30.25*
Prevention target group × In-group membership	3	11.17*
Industry marketing practices	2	0.25
Industry marketing practices × Prevention target group	6	1.98
Industry marketing practices × In-group membership	2	2.06
Industry marketing practices × Prevention target group × In-group membership	6	0.61

Note.  $n = 5,937$ . Prevention target groups were teens; African Americans; Latinos; or gays, lesbians, and bisexuals. In-group membership was whether the study participant was a member of the target group. Industry marketing practices was no description of the industry practice; general description of it; or specific to a target group.

\* $p < 0.001$ .

lower among in-group than out-group members when teens were the prevention target group ( $p = 0.04$ ).

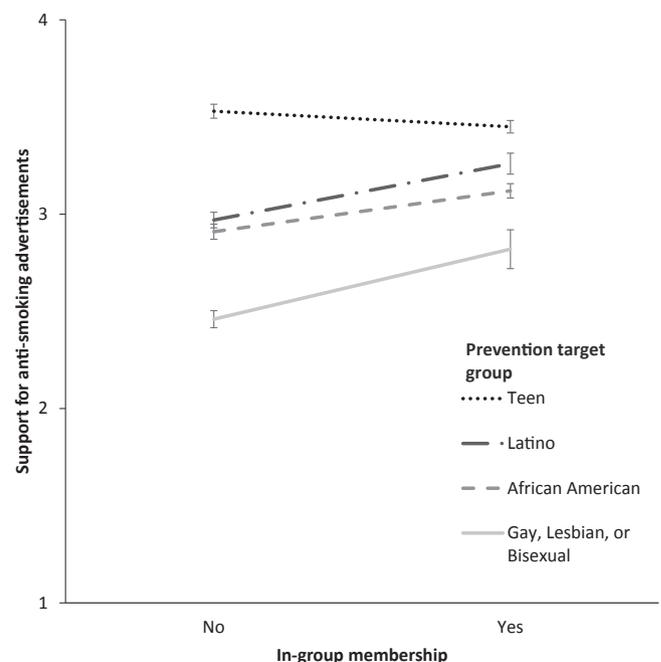
**Industry marketing practices.** Support did not differ by the description of industry marketing practices ( $p = 0.78$ ; Table 2). None of the two-way or three-way interactions with industry marketing practices were statistically significant.

## 3. Experiment 2

We sought to replicate the findings of Experiment 1 in another national study conducted online among adults.

### 3.1. Methods

We conducted an online survey in December 2014 with a convenience sample of 4,137 adults ages 18 or older, recruited using Amazon Mechanical Turk. The online survey announcement encouraged smokers to participate but did not prevent non-smokers from participating. Because Experiment 2 did not



**Fig. 1.** Support for anti-smoking advertisements, Experiment 1. Error bars show standard errors.

include adolescents, it did not have an in-group condition for teens. Experiment 2 used identical measures as those in the adult phone survey in Experiment 1. Eight participants were missing on the primary outcome, leaving an analytic sample of 4,129 participants.

Five demographic characteristics of participants (sex, race, ethnicity, education, and sexual orientation) were equivalent across experimental conditions (6 of 7 tests, all  $p > 0.05$ ); the exception was that Latinos were more commonly assigned to the “no statement” condition than the other two industry marketing practice conditions in the online survey ( $p < 0.05$ ). Analyses for Experiment 2 were similar to those for Experiment 1 except for one difference. Because one cell of the factorial design (teen in-group) was missing for the online survey of adults, we dropped responses about teens in the ANOVA. Thus, we used a  $3 \times 3 \times 2$  between-subjects ANOVA. We used an additional one-way ANOVA among out-group participants to examine differences in support for anti-smoking advertisements for all four prevention target groups including teens.

### 3.2. Results

Sample characteristics were similar to those of adult participants in Experiment 1 (Table 1).

**Prevention target group.** In the online survey, prevention target group again affected support for anti-smoking advertisements ( $p < 0.001$ ; Table 3). Support was similar for anti-smoking advertisements targeting Latinos ( $M = 2.90$ ,  $SD = 1.04$ ) and African Americans ( $p = 0.24$ ) and higher for African Americans ( $M = 2.85$ ,  $SD = 1.07$ ) than GLBs ( $M = 2.50$ ,  $SD = 1.16$ ;  $p < 0.001$ ). A separate analysis of out-group participants only found that they expressed higher support for teens ( $M = 3.38$ ,  $SD = 0.88$ ) than Latinos ( $M = 2.81$ ,  $SD = 1.04$ ;  $p < 0.001$ ).

**In-group membership.** Support varied by group membership so that in-group members ( $M = 2.93$ ,  $SD = 1.09$ ) expressed more support than out-group members ( $M = 2.65$ ,  $SD = 1.10$ ;  $p < 0.001$ ; Table 3). The effect of group membership was moderated by prevention target group ( $p < 0.001$ ). Support for anti-smoking advertisements was again higher among in-group members than out-group members for African Americans ( $p < 0.001$ ), Latinos ( $p < 0.001$ ), and GLBs ( $p = 0.008$ ; Fig. 2). However, the in-group/out-group difference was larger for African Americans ( $M = 0.58$ ) than for Latinos or GLBs ( $M_s = 0.33$  and  $0.18$ , both  $p < 0.05$ ). Because no teens participated in the online survey, it was not possible to examine the effect of membership on support for this target prevention group.

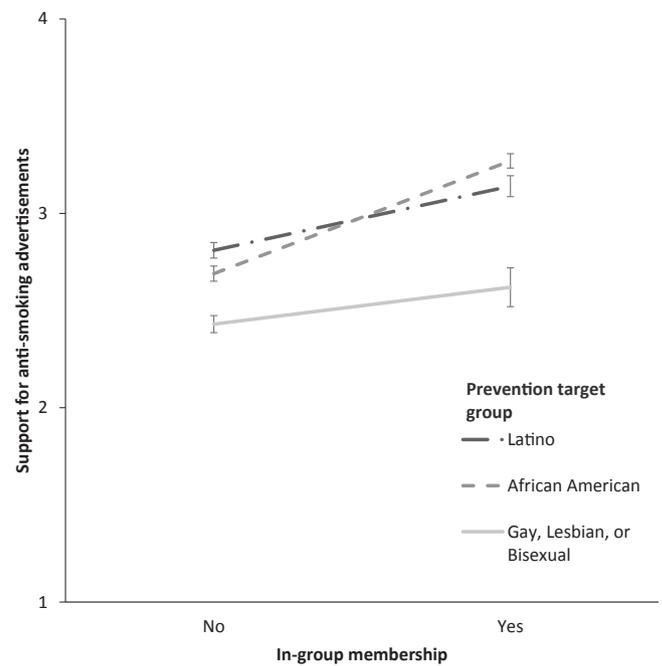
**Industry marketing practices.** Support did not differ by the description of industry marketing practices ( $p = 0.13$ ; Table 3). None of the two-way or three-way interactions with this variable were statistically significant.

**Table 3**  
Effects of manipulations on support for anti-smoking ads, Experiment 2.

	df	F
Prevention target group	2	61.62*
In-group membership	1	76.72*
Prevention target group $\times$ In-group membership	2	8.25*
Industry marketing practices	2	2.02
Industry marketing practices $\times$ Prevention target group	4	1.73
Industry marketing practices $\times$ In-group membership	2	2.91
Industry marketing practices $\times$ Prevention target group $\times$ In-group membership	4	0.25

Note.  $n = 4,129$ . Prevention target groups were African Americans; Latinos; or gays, lesbians, and bisexuals. In-group membership was whether the study participant was a member of the target group. Industry marketing practices was no description of the industry practice; general description of it; or specific to a target group.

\* $p < 0.001$ .



**Fig. 2.** Support for anti-smoking advertisements, Experiment 2. Error bars show standard errors.

### 4. Discussion

The findings of Experiment 2 were very similar to Experiment 1. Targeted anti-tobacco marketing is an important strategy for reducing tobacco use among vulnerable groups (e.g., the teen-targeted Truth campaign successfully reduced smoking among adolescents; Hershey et al., 2005; Thrasher, 2004). Our findings indicated strong public support for anti-smoking campaigns for teens. However, public support for similar efforts for GLBs, African Americans, and Latinos was lower. Tobacco countermeasures for a vulnerable population may wish to actively and visibly involve members of that population in order to activate in-group identity and consequent support.

As hypothesized, in-group members were generally more supportive of anti-smoking advertisements than out-group members. As described by social identity theory, group membership allows individuals to achieve a positive social identity (Haslam et al., 2009). As such, social identity may affect how individuals react to health-related norms and engage in health-related behaviors. For three prevention target groups (African-Americans, Latinos, and GLBs) in Experiment 1, in-group members expressed higher support for anti-smoking campaigns than out-group members, but this finding was reversed for teens. This reversal may be because adults view teens as a group that needs protection, but teens do not view themselves that way. Adolescents minimize or do not fully understand the negative consequences of smoking (Mantler, 2013; Slovic, 1998, 2000). If teens view themselves and their peers as unaffected by the harms of smoking, then they may not see a need to support anti-smoking campaigns for teens. Alternatively, teens may be conceptualized as an inherently heterogeneous group because it includes GLBs, African-Americans, and Latinos. If being a teen is not a primary social identity for adolescents, then making this identity salient through targeting could have a smaller effect on support for targeted anti-smoking campaigns among teens than adults.

Our hypothesis that support would be higher for teens than for other groups was confirmed. In both experiments, support for anti-smoking campaigns for teens was higher than for all other groups,

possibly reflecting broad agreement among the public that teens should be prevented from engaging in risky health behaviors. The finding may also reflect widespread public knowledge that special efforts to support teens are necessary because the tobacco industry specifically targets youth, a message widely delivered by the Truth campaign. The emphasis on teens by current anti-smoking efforts is both practical in terms of targeting the group at highest risk for initiating (youth) and building on broad public support.

Our descriptions of industry marketing practices had no effect on support, perhaps because it was a low-dose manipulation (only briefly mentioned or not) in comparison to the other two manipulations. Any effect of the industry marketing practices manipulation may have been hampered by poor knowledge that certain groups are a priority for tobacco prevention and control efforts. For example, if participants did not know that GLBs have some of the highest rates of smoking in the U.S. (Lee et al., 2009), urgency to act against tobacco industry marketing specifically to GLBs may have been low. Alternatively, because people understand that many industries use targeted marketing, participants may not have been surprised to learn that tobacco companies do the same. Thus, the presence or absence of a brief statement about targeted tobacco marketing may have had limited importance to participants.

#### 4.1. Strengths and limitations

Experiment 1 relied on large probability samples with strong representation of minority populations relevant to tobacco prevention and control. Although Experiment 2 used a convenience sample, its results were similar to those from Experiment 1. A limitation is that individuals who were members of prevention target groups were assigned in a specific order (teens, GLBs, African Americans, and Latinos) to an experimental condition, but they may have been members of more than one of these groups. Thus, they may have responded about a group that was not their primary identity. We also did not examine psychosocial factors that explain the rank order of prevention target groups with respect to support for targeted advertisements. We speculate that respondents may have felt that youth are especially vulnerable to manipulation by tobacco companies and were largely unaware of the high rates of smoking among GLBs. Another limitation is that we could not examine the extent to which in-group members supported anti-smoking campaigns for out-group members. These are important areas for future research.

Other limitations concern the primary outcome measure. Because the primary outcome measure referenced the CDC, differential knowledge of what the CDC is or the extent to which they view the CDC as a credible source may have influenced participants' responses (Schmidt et al., 2016). The primary outcome measure also used a four-point response scale, which could have limited variability in the participants' responses. However, research indicates that four-point scales still have good psychometric properties, and the large sample sizes afforded substantial power (Lozano et al., 2008). Finally, the experiment presented hypothetical scenarios, a useful strategy for early exploration of topics like acceptability of new products, medical services, and advertising approaches (Brewer and Fazekas, 2007; Brewer et al., 2012; Pepper et al., 2012).

#### 4.2. Research and practice implications

People expressed higher support for tobacco countermeasures that were tied to the social identities specified in our experiment than countermeasures that were not. By extension, incorporating identity processes in the study of health and well-being might be helpful in the development of novel, sustainable social marketing

and health communication campaigns. In order to do so, future studies should examine whether our findings hold for other health issues such as infectious diseases and obesity and other social identities. Replication of our findings about group membership across multiple health issues may support the claim that members of vulnerable groups are more motivated to improve the health of their own vulnerable groups than individuals who are not members. Future studies should further examine the impact of specifying both the in-group and out-group on support for targeted anti-smoking campaigns. It is possible that doing so will activate positive and negative stereotypes about the out-groups, which may have unexpected effects on campaign support.

Our findings also have implications for tobacco control funding. Future studies should examine what "ingredients" of messages work the best to bolster support for targeted anti-smoking campaigns for vulnerable groups. For example, providing in-depth descriptions of specific tobacco industry marketing campaigns that target vulnerable populations, like Project SCUM, might enhance support. Including information about smoking disparities or other population-specific threats could do the same by providing meaningful context (Niederdeppe et al., 2008). Future studies should also explore the psychological processes that salient group membership activates and how anti-smoking campaigns can take advantage of social identity processes to increase impact and reach. Finally, resources for tobacco control should target GLBs in particular given that this group has some of the highest smoking rates in the US and the lowest public support for targeted campaigns. This research will hopefully result in theory-driven, effective campaigns to prevent and reduce smoking among vulnerable groups.

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