

Shifting Signals to Help Health: Using Identity Signaling to Reduce Risky Health Behaviors

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This research examines how identity-based interventions can improve consumer health. Results of laboratory and field experiments reveal that associating risky health behaviors with a social identity people do not want to signal can contaminate the behaviors and lead consumers to make healthier choices. College freshman reported consuming less alcohol (experiment 2), and restaurant patrons selected less fattening food (experiment 3), when drinking alcohol and eating junk food were presented as markers of avoidance groups. These findings demonstrate that identity-based interventions can shift the identities associated with real-world behaviors, thereby improving the health of populations.

Health campaigns often focus on disseminating risk information. Public service announcements list the negative consequences of smoking and direct parents to “talk to your kids about the dangers of drugs” (National Youth Anti-drug Media Campaign 2006). The U.S. Department of Health and Human Services (2006) suggests that the key to reducing underage drinking is to increase national awareness of the problem and its consequences.

Risk awareness, however, does not always result in healthier behavior. Many people continue to engage in negative health behaviors, even when they are aware of the risks (Fisher and Misovich 1990). For example, many college students know the dangers of binge drinking but continue to drink to excess. Similarly, cigarette packages in the European Union explicitly say, “Smoking Kills,” yet more than one in four European adults continue to light up (World Health Organization 2007). Why might people who are aware of the risks still continue to engage in detrimental

health behaviors, and what strategies might help them to reduce those behaviors?

To shed light on these questions, the current studies focus on how health behaviors communicate identity. To illustrate, consider anecdotal evidence about why undergraduates at Stanford University hesitate to wear bike helmets when they ride across campus. Many bike accidents occur every year, and numerous injuries could be prevented if more undergraduates just wore helmets (indeed, they are well aware of this hazard). But although this safety failure could be due to a number of factors, many undergraduates explained their reluctance to wear helmets, based on concerns of identity communication—they chose not to wear helmets because graduate students wore them. Graduate students were not disliked by undergrads, but they were seen as socially awkward and overly intense. Thus, some undergraduates avoided helmets to avoid giving others the mistaken impression that they were akin to this social group. In this case, identity trumped safety.

This research examines whether risky health behaviors can be mitigated by being linked to identities consumers do not want to signal to others. Consumers attend not only to the risks associated with various behaviors but also to the social identity that those behaviors communicate. Consequently, if health campaigns can contaminate the identity associated with risky behaviors, they may be able to improve public health.

RISK EDUCATION, HEALTH BEHAVIORS, AND IDENTITY

Much health-related research has focused on risk perception (see Weinstein 1993). Protection motivation theory (Rogers 1983), for example, argues that people’s likelihood

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of changing their behavior in response to a health-related appeal depends on their perceived severity of, and perceived vulnerability to, a risk-related condition. Heightening awareness of either of these factors should motivate behavior change.

In many cases, however, increased information and awareness do not lead to behavior change. Although older adolescents are quite knowledgeable about AIDS and its transmission, for example, few actually changed their behavior as a result of this knowledge (Roscoe and Kruger 1990). More broadly, a recent meta-analysis reviewed dozens of protection motivation studies but found no significant relationship between risk perceptions and future behaviors (Milne, Sheeran, and Orbell 2000).

This article focuses on how health decisions are affected by the communication of identity. Symbolic concerns have an important influence on how consumers make decisions (Levy 1959). In the health domain, the prototype model of risk behavior (Gibbons and Gerrard 1995) posits that health decisions are driven by the valence of the characteristics associated with particular behaviors. Choices can also act as markers or signals of identity, social groups, and social class (Berger and Heath 2007; Holt 1998; Thompson and Haytko 1997; Veblen 1899/1970). People often engage in risky behaviors to communicate specific social identities to others in the social world (e.g., smoke to seem like a member of the cool crowd). Consequently, the decision to engage in detrimental health behaviors depends on not only perceived risk but also the identity such behavior signals to others.

Building on this research, we suggest that associating risky health behaviors with identities most consumers want to avoid signaling to others will improve public health. The social group associated with a behavior can shape consumer choice (Escalas and Bettman 2005). People emulate the behaviors of aspiration groups (Englis and Solomon 1995) but also diverge and avoid products or behaviors associated with dissociative reference groups, or groups with whom they want to avoid being confused (Berger and Heath 2007, 2008; Simmel 1904/1957; White and Dahl 2006, 2007). Men given a banquet scenario, for example, avoided steaks labeled as "ladies cut" (White and Dahl 2006), and in product domains perceived to communicate identity, consumers diverged from out-group members' choices more generally (Berger and Heath 2007).

Importantly, such identity associations are not static (Berger and Heath 2007, 2008; Holt 1997). The meaning of a behavior can change based on perceptions of who engages in it. As a result, if interventions can shift the meaning associated with engaging in risky health behaviors, they may be able to improve consumer health.

THE CURRENT RESEARCH

This research examines whether campaigns that link risky health behaviors to avoidance groups can enhance the health of populations. In the process, we also make several contributions to the related literature.

First, we investigate the strength and temporal persistence

of identity-signaling manipulations. Most health campaigns are separated both physically and temporally from the context in which actual health decisions take place (see Goldstein and Cialdini [2007] for a related discussion). Responsible drinking messages may cover the campus health center, for example, but most actual drinking decisions occur days or weeks later, in dormitories or at parties. Consequently, for identity-avoidance manipulations to improve consumer health, they must extend beyond the context in which the intervention materials are presented. Prior research, however, has relied on options that have little meaning outside the identity with which they are associated and situations in which the out-group associations are made salient directly before choice. For example, Berger and Heath (2007, study 4) had participants choose between items differentiated only by the number and social identity of the people that preferred them. Consequently, it remains to be seen whether such links are strong enough to exert lasting effects on health behaviors.

Second, we examine the dynamic nature of meaning and whether identity-avoidance manipulations can actually shift identity associations. Research has shown that people avoid products that signal undesired identities, but most studies in this area have taken meaning as static (White and Dahl 2006, 2007). Products are assigned identity associations (e.g., ladies cut), and this is shown to affect choice. In the real world, however, meaning is much more dynamic (Holt 1997). Although they did not test this possibility, Berger and Heath (2007, 2008) argue that the identity signaled by a particular product or behavior may change when new social groups adopt it (also see Simmel 1904/1957). This issue is particularly important in a policy context because although shifts in meaning may occur naturally when new people adopt a product, effective interventions would need to generate and drive such identity shifts even when there is no change in the people actually engaging in a behavior. Prior research has not examined whether such shifts are possible, and this question becomes even more important given that many real-world behaviors already have strong existing identity associations that may be resistant to change.

Third, we advance divergence theory by using the self-monitoring scale (Snyder 1974) to gain deeper insight into the mechanism behind these effects. Consumers may avoid products associated with dissociative reference groups either for internal, self-driven reasons or for external reasons based on social communication. People prefer options for which the prototypical user matches their self-perceptions (Niedenthal, Cantor, and Kihlstrom 1985) and may avoid products associated with avoidance groups not for concerns of how others perceive them, but because those products do not match their own self-perception. Accordingly, although some work has highlighted the role of the private self in dissociative influence (White and Dahl 2007), other research takes a more social perspective, arguing that people diverge to avoid signaling undesired identities to others (Berger and Heath 2007, 2008).

To test our suggestion that divergence is driven by social signaling, we use a measure that assesses whether people's

behavior is driven by internal attitudes or external factors. High self-monitors are particularly sensitive to how others see them and modify their behavior to achieve a desired public image. Prior work has examined how public self-consciousness might moderate the effects of out-group association on avoidance (White and Dahl 2006), but because this scale focuses on the self and “the locus of *self*-attention” (Lamphere and Leary 1990, 723; italics added), these results have less to say about whether people are changing their behavior to avoid others making undesired inferences. Individuals with high public self-consciousness may pay more attention to how they look and how choices affect their appearance, but this does not address whether they are diverging to avoid signaling undesirable identities to themselves or to others. Self-monitoring, however, explicitly distinguishes between whether the locus of behavioral influence is internal (i.e., the self) or external (i.e., social cues; Lamphere and Leary 1990; Penner and Wymer 1983).¹ Consequently, if our effects are driven by outward communication to others, as we suggest, then they should be more likely to occur among high self-monitors.

EXPERIMENT 1: THE JUNK FOOD STUDY

Obesity rates have more than doubled in the past few decades (Ogden et al. 2006). Because college is the first time many people make food choices on their own, it is an important life stage to examine the utility of identity-based behavior-change strategies. Experiment 1 used a real choice situation to examine whether identity-avoidance manipulations could be used to reduce actual junk food consumption.

Undergraduates read a news article that associated junk food consumption either with their in-group or with an out-group with whom these students generally did not want to be confused. Then, in the context of an ostensibly unrelated study, they made real food choices in a public pseudostore environment. Importantly, some of the choices were between healthy and junk food options, such as an apple versus a chocolate brownie. We predict that associating junk food with a generally dissociative out-group will lead participants to make healthier choices.

Out-Group Pretest

Before we conducted the main studies, it was necessary to find out-groups with whom members of our population, on average, did not want to be confused (i.e., avoidance groups). Because people might avoid behaviors associated with disliked groups due to affective contagion or consistency motives (Heider 1946), it was important to select out-groups that were not disliked. Participants were given a list of campus groups and rated either how much they liked the group or whether they would want to be thought of as a

member. Graduate students and online gamers fit both criteria: they were liked ($M = .90$ and $.82$, significantly above the scale midpoint; t 's > 4.50 , p 's $< .001$), but, on average, members of our population did not want to be confused with them ($M = -1.65$ and -1.50 , significantly below the scale midpoint; t 's > 3.0 , p 's $< .01$). Consequently, although not all members of our population want to avoid being confused with these groups, on average they are avoidance groups and were used in our subsequent studies.

Method

Fifty Stanford University undergraduates completed two studies as part of a larger lab session. They were randomly assigned to a condition, run in small groups, and received \$10 for their time.

Identity Manipulation. In the first study, participants were told that the experimenter was interested in “people’s responses to various writing styles.” Each read three articles that were seemingly taken from the university newspaper and was asked to write a few sentences about each article and its topic.

The only difference between conditions was the social group the articles linked to junk food consumption. The second article reported recent research regarding which campus group was the largest consumer of junk food, and the group identity varied by condition. In the in-group (out-group) signal condition, it began by saying that: “A recent survey of campus eating habits found that undergraduates (graduate students) are by far the largest consumers of junk food on campus. While eating habits among all campus groups could be healthier, the survey found that the average undergraduate (graduate student) consumes almost two times the amount of junk food as an average person on campus.”

Dependent Measures. After completing filler surveys, participants went down the hall and completed an ostensibly unrelated study on food choice. The room mimicked a normal shopping environment with multiple units of various choice pairs (e.g., Coke and Pepsi, apples and brownies) set up on different tables. Participants picked up a shopping basket and went around the room selecting whichever options they preferred from each choice pair. Multiple participants made their choices at the same time. They were instructed that other participants would form impressions about them based on their choices and that they would get to take home an option they selected.

The key dependent variable was junk food choice. In five of the 10 choice pairs one option was healthier than the other (e.g., apples over brownies). After making their choices, participants were given one of the items they selected and compensated for their time.

Results

The number of junk food items each participant chose was summed, and we examined this junk food index based

¹Studies have found minimal shared variance between self-monitoring and public self-consciousness (Lamphere and Leary 1990; Penner and Wymer 1983), further indicating that these two measures tap distinctly different aspects of personality.

on condition. Because gender has been shown to have a significant impact on eating and drinking behaviors (Roos et al. 1998; Wechsler 2001), gender was included as a covariate in all our studies. As predicted, associating junk food with an avoidance group led people to make healthier choices. Compared with participants in the in-group signal condition ($M = 3.00$), participants in the out-group signal condition chose less junk food ($M = 2.16$; $F(1, 47) = 4.08$, $p < .05$).

Discussion

Experiment 1 provides preliminary support for the notion that identity-based behavior-change strategies can be used to improve consumer health. When unhealthy behaviors were linked to a generally dissociative out-group, participants made healthier choices. Undergraduates selected healthier food when junk food was linked to a social identity that, on average, they did not want to signal to others.

The experimental design also casts doubt on a number of alternative explanations for the results. Because undergraduates liked graduate students, it is hard to argue that these findings were due to either affective contagion or consistency motives. Further, because well-known foods such as brownies were used, it is harder to argue that some combination of beliefs about preference heterogeneity and informational influence drove the effects—in other words, that undergraduates avoided junk food because they inferred that they would not enjoy foods liked by graduate students.

This study has some potential limitations, however, that our subsequent experiments were designed to avoid. Because the control condition linked junk food to in-group members, one could argue that the results are due to conformity to the in-group, rather than divergence from the out-group. Alternatively, although making inferences about others based on their choices occurs often in everyday life, one could argue that the identity-avoidance manipulation worked only because participants were explicitly informed that others would form inferences about them. To avoid these potential concerns, the following studies avoided any such instructions and used control conditions not involving identity. In addition, to provide further support that identity-signaling concerns drive these effects, the next study examined whether the effects are moderated by whether people want to avoid others thinking that they are akin to the out-group linked to the risky behavior. The study also used a more naturalistic setting to investigate whether the manipulation could have persistent effects on the identity associated with the behavior, as well as the behavior itself.

EXPERIMENT 2: THE ALCOHOL STUDY

Alcohol consumption by underage minors is a significant problem in the United States. In addition to issues of legality, underage drinking is especially dangerous for young people because they are far more likely to binge drink (U.S. Department of Health and Human Services 2006). Experiment 2 examined whether an identity-based behavior-change ap-

peal could reduce rates of underage drinking. Posters encouraging students to drink responsibly were placed in two dormitories. As is common in many health campaigns, posters in the control dorm informed students about alcohol-related risks (informational appeal condition). Posters in the target dorm (out-group signal condition) appealed to concerns of communicating identity: they linked alcohol consumption to an out-group with which undergraduates, on average, tend not to want to be associated. Two weeks later, participants reported their recent alcohol consumption and their perceptions of the social identities linked to drinking.

As discussed in the introduction, most health campaigns are separated both physically and temporally from the behaviors they attempt to influence. Consequently, to be effective they must not only momentarily link a behavior to a social identity but also shift the identity that people associate with that behavior. Further, they must do so even in the absence of a change in the actual people engaging in the behavior. Experiment 2 examines whether the out-group signal manipulation will be strong enough to shift the identity linked to alcohol and, as a result, improve behavior.

We also took advantage of individual variation within our population to test our hypothesized mechanism. Although the experiment 1 pretest illustrated that our undergraduate population, on average, wants to avoid others thinking that they are akin to graduate students, there are obviously individual differences in this predilection. In fact, some undergraduates, particularly studious ones, for example, or those thinking of going on to graduate study, may actually welcome such an inference.

Although policy makers should select the out-group in which the greatest proportion of their audience does not want to signal membership, the use of an out-group for which individual variation exists provides an ideal research setting because it allows us to test the mechanism behind the effect. Accordingly, we also asked participants to rate whether they would want others to think that they were akin to graduate students. If our effects are driven by identity-signaling concerns, as we suggest, then participants who would want to avoid others thinking that they are akin to the group linked to heavy drinking should consume less alcohol.

Method

Participants. The study was conducted in two all-freshman dormitories at Stanford University; 87 residents completed our materials online. They were recruited through their dorm e-mail list and received a chance to win \$25 gift cards as compensation. One participant provided extreme responses on the main dependent measure (> 5 SD from the mean) and was omitted from all further analyses. All participants were under age 21.

Having a manipulation correlated with existing characteristics (e.g., dormitory membership) can potentially threaten internal validity, so we took numerous steps to reduce this possibility. First, we selected dorms that were as similar as possible, by virtue of being in the same larger complex and

housing only first-year students. Second, we used first-year dorms because their residents are assigned to them before they arrive on campus, meaning preexisting factors that could have caused subsequent differences in our dependent variable (e.g., propensity to drink) should be more or less randomly distributed. Third, we conducted the study at the beginning of the school year to reduce the likelihood that different cultures could emerge in the two populations (e.g., more parties in one dorm) that might influence our results. Supporting the notion that these two groups were similar, pilot data ($N = 61$) indicated that these two groups did not differ on other health-related behaviors (e.g., how much they reported exercising or eating fast food; F 's $< .60$, p 's $> .50$).

Alcohol Appeals. Flyers that promoted responsible drinking were posted in restrooms and on bulletin boards in the two dorms. In the out-group signal condition, the flyer linked alcohol consumption with graduate students. It depicted a graduate student holding an alcoholic beverage and suggested, "Lots of graduate students at Stanford drink . . . and lots of them are sketchy. So think when you drink. . . . Nobody wants to be mistaken for this guy." In contrast, the control flyer (informational appeal) did not address social identity. The appeal focused solely on information and detailed the negative health effects of alcohol. It contained a picture of an alcoholic drink, provided a number of cautionary drinking statistics such as "one night of heavy drinking can impair your ability to think abstractly for 30 days," and reminded students, "Think when you drink. Your health is important."

Dependent Measures. Two weeks after the flyers were posted, dorm members received an e-mail from their residential assistant asking them to complete a short online survey. Participants first reported the amount of alcohol they had consumed in the past week, using the standard recording mechanism from the alcohol consumption literature (Wechsler 2001). For each day of the week, they were asked, "Please enter how many alcoholic drinks you had on each day, or enter '0' for days that you did not drink. A drink is defined as a 12-ounce beer, an 8.5-ounce malt beverage, a 12-ounce wine cooler, a 5-ounce glass of wine, a mixed drink, or a shot of liquor." Participants then completed measures examining whether the flyers influenced the social identity associated with alcohol consumption. Different campus groups including graduate students were listed, and participants provided their perception of how frequently members of these groups drink (1 = almost never; 7 = very frequently). Finally, participants rated whether they would want others to think that they were akin to members of several groups, including graduate students (using the scale from the experiment 1 pretest).

Results

Identity Associations. A repeated-measures ANOVA investigated whether the flyer manipulation influenced the social identity associated with alcohol consumption. Con-

sistent with our hypothesis, analyses revealed an alcohol appeal \times social group interaction ($F(1, 80) = 4.30$, $p < .001$). Exposure to the flyer linking graduate students with alcohol increased participants' perception of alcohol consumption among graduate students ($M = 4.89$ vs. 4.12; $F(1, 84) = 9.21$, $p = .003$) but not among any of the other social groups (F 's $< .5$, p 's $> .45$). These results indicate that the out-group signal manipulation was successful in increasing the association between alcohol and the avoidance group.

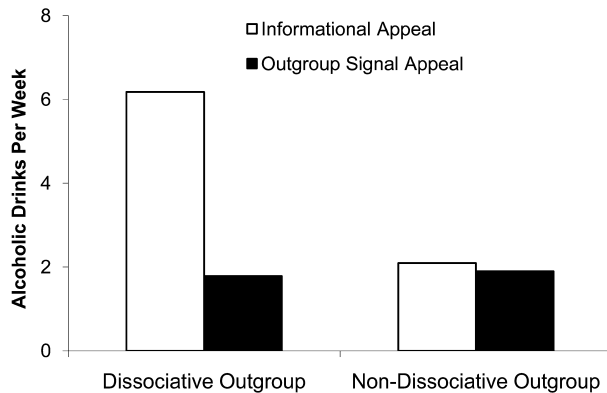
Reported Alcohol Consumption. Our first analysis focused on the main manipulation. The amount of alcohol each participant noted consuming each day was summed across the week and examined based on condition. As predicted, the out-group signal appeal seemed to decrease alcohol consumption; compared to control participants ($M = 4.04$), people exposed to flyers linking alcohol consumption to a (generally) dissociative out-group noted consuming over 50% less alcohol ($M = 1.85$; $F(1, 83) = 3.13$, $p = .08$).

To further examine the mechanism underlying this effect, we also examined whether it was moderated by individual differences in participants' desire to be treated (or avoid being treated) as a member of the out-group linked to alcohol. There was no effect of alcohol appeal on this measure ($F < .01$), and reported alcohol consumption was submitted to an alcohol appeal (out-group signal vs. control) \times attitude toward signaling out-group identity multiple regression analysis. There was a main effect of attitude toward signaling the out-group identity ($\beta = -.23$, $t = -2.18$, $p = .03$) and a marginal main effect of alcohol appeal ($\beta = -.19$, $t = -1.84$, $p = .07$), but more important, this effect was qualified by the predicted interaction ($\beta = .23$, $t = 2.17$, $p = .03$). To clarify this effect, we decomposed the interaction 1 standard deviation above and below the mean level of the individual difference variable (for ease of presentation, the means based on a median split on this measure are displayed in fig. 1). As expected, there was a significant effect of alcohol appeal among people who wanted to avoid others thinking that they were akin to graduate students ($\beta = -.41$, $t = -2.81$, $p = .006$). Participants who did not want to be confused with graduate students reported drinking less when a manipulation linked graduate students to alcohol consumption. The corresponding effect was not significant among participants who did not mind others thinking that they were associated with graduate students ($\beta = .03$, $t = 0.21$, $p > .80$).

Looking at the data another way, among participants in the control condition, those who wanted to avoid others thinking of them as graduate students reported greater alcohol consumption ($\beta = -.45$, $t = -2.99$, $p = .004$). This result is not entirely surprising, however, given that graduate students are often highly studious, and thus undergraduates who do not mind being associated with this identity may themselves be more studious and less likely to drink. Indeed, in a different sample of participants ($N = 20$) collected separately from the main study, desire to be thought of as a

FIGURE 1

IMPACT OF ALCOHOL APPEAL AND WHETHER PARTICIPANTS WANT TO AVOID SIGNALING MEMBERSHIP IN THE OUT-GROUP ON REPORTED ALCOHOL CONSUMPTION (EXPERIMENT 2)



graduate student was negatively correlated with alcohol consumption ($r = -.43, p = .07$). The fact that this difference disappeared for participants exposed to the out-group association manipulation ($\beta = .02, t < .01, p > .90$), however, further suggests that the identity-based manipulation positively influenced behavior.

Additional analysis indicates that the decrease in alcohol consumption was due, at least in part, to a decrease in the frequency of heavy drinking. Examining the number of times participants reported drinking three or more drinks in an evening yielded a main effect of desire to be treated as an out-group member ($\beta = -.23, t = -2.25, p = .03$). But more important, this was qualified by the same alcohol appeal \times attitude toward signaling out-group identity interaction ($\beta = .28, t = 2.75, p = .007$). Again, there was a significant effect of alcohol appeal among people who wanted to avoid others thinking that they were akin to graduate students (out-group signal $M = 0.23$ vs. control $M = 0.80$; $\beta = -.43, t = -2.88, p = .005$) but not among people who did not mind others thinking that they were akin to graduate students (out-group signal $M = 0.42$ vs. control $M = 0.22$; $\beta = .11, t < 1.00, p > .45$).

Discussion

Experiment 2 illustrates a number of important points regarding identity-based behavior-change strategies and their utility in improving the health of populations. First, the results demonstrate that interventions can shift the identity associated with a behavior, even in the absence of a change in the actual people who engage in that behavior. In this instance, simple flyers shifted the identity college freshman associated with alcohol consumption. Second, the study suggests that such campaigns can also improve the health of populations; compared with participants in the control condition, participants exposed to flyers linking a generally

dissociative out-group to alcohol consumption reported drinking half as much and noted fewer instances of heavy drinking. Third, the results underscore the notion that identity-signaling concerns drove these effects. It was participants who wanted to avoid other people thinking that they were members of the social group linked to alcohol consumption who noted drinking less.

The interactive pattern of results also casts doubt on a number of alternative explanations. One could argue that undergraduates may have been more accustomed to informational appeals, and thus the identity-based flyer may have been more novel (and cut through the clutter). Alternatively, one could argue that any differences in alcohol consumption between conditions could be an artifact of natural differences between the groups. But these alternatives have difficulty explaining the interactive pattern of results. One manipulation may have been more novel, or a certain dorm may have housed more heavy drinkers, but these explanations are less useful in explaining why the results were moderated by participants' desire to be treated (or avoid being treated) as a member of the out-group linked to alcohol consumption.

Measuring actual underage alcohol consumption is obviously problematic, and this study used the standard alcohol-reporting measure used in both the alcohol literature (Wechsler 2001) and education initiatives (Busteed 2006), but one might still be concerned that the results are based on reported behavior. To avoid this potential concern, our final field study measures actual choices, while further examining whether the observed divergence is driven by social signaling.

EXPERIMENT 3: THE RESTAURANT STUDY

Experiment 3 again examined whether identity-based campaigns in a naturalistic environment can have consequences for material well-being, while also investigating how these effects are influenced by individual differences in social sensitization.

Participants were stopped on their way into a campus eatery and asked to complete a short survey, ostensibly regarding personality and responses to news. After completing a self-monitoring scale, they completed a newspaper task similar to the one used in experiment 1. The only difference between conditions was the content of the second article; participants in the target condition read an article that associated junk food consumption with a generally dissociative out-group. After turning in their completed surveys, participants went into the dining establishment to order food. Unbeknownst to them, a research assistant unobtrusively recorded what they ordered.

We predict that people will order healthier food when junk food is linked to a generally dissociative group. Further, consistent with the notion that this effect is driven by identity-signaling concerns, it should be moderated by self-monitoring. High self-monitors control their actions to achieve a desired public image. Consequently, linking junk food

choice to an avoidance group should have a greater effect on the food choices of high self-monitors.

Method

Location and Participants. The study was run in a Stanford University on-campus eatery that offers both typical junk food (e.g., fried chicken tenders and high-fat milk shakes) and healthier fare (e.g., grilled chicken and fruit smoothies). During a 3-hour period, researchers approached patrons on their way into the establishment and asked them to complete a “Media Perception” survey. Seventy-five students agreed, and they were randomly assigned to a condition and received a lottery ticket as compensation.

Independent Measures. The survey measured individual differences in self-monitoring and manipulated the social identity associated with junk food. Participants were told that the researchers were interested in how personality influences the way people perceive the media and were asked to complete the self-monitoring scale (Snyder and Gangestad 1986). They then completed the identity-signaling manipulation (similar to the one used in experiment 1), in which they read and responded to two newspaper articles. The only difference between conditions was the content of the second article. Participants in the control condition read about an innocuous topic unrelated to food or identity (politics and pop culture), while participants in the out-group signal condition read an article that associated junk food consumption with a generally dissociative out-group (online gamers). After rating the articles, participants returned the survey and received their compensation.

Dependent Measure. The dependent measure was each participant’s food choice. After completing the survey, participants went into the dining establishment to order food. Unbeknownst to them, a research assistant was sitting near the order counter, unobtrusively recording each person’s gender and what he or she ordered. The assistant also recorded what people were wearing, as did the researcher collecting the surveys, which allowed the researchers to match each survey respondent with the food he or she ordered.

Results

Preliminary Analyses. Two raters who were blind to condition coded each order’s perceived healthiness (−1 = unhealthy; 0 = in-between; 1 = healthy). Initial ratings were reliable ($r = .76, p < .001$), and disagreements were resolved through discussion.

Effects on Junk Food Consumption. We first examined the impact of junk food appeal on choice. As predicted, compared to the control condition ($M = -.38$), participants in the avoidance group condition selected items perceived as healthier ($M = .02; F(1, 74) = 4.10, p < .05$). Next, we examined whether these effects were moderated by self-monitoring. Responses on the self-monitoring scale were

summed, and a median split was performed. The perceived healthiness of participants’ food choices was then analyzed using a 2 (self-monitoring: high vs. low) \times 2 (junk food appeal: out-group signal vs. control) ANCOVA.

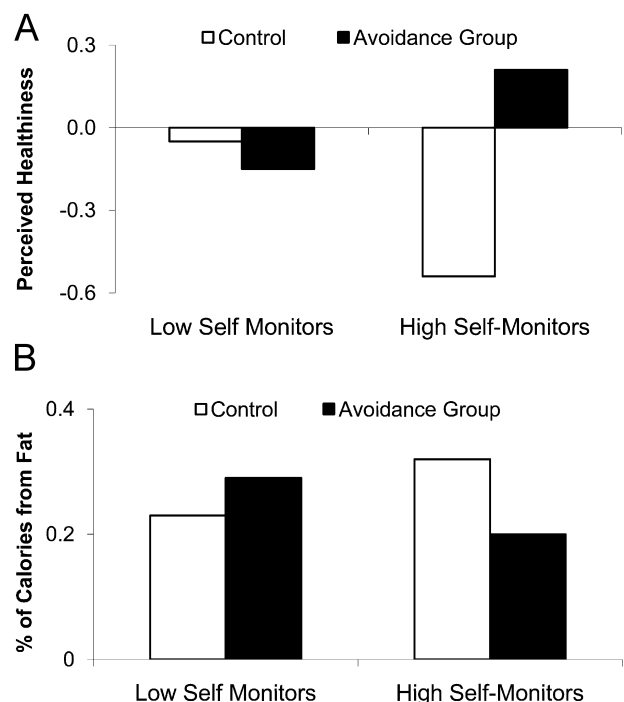
As predicted, analysis revealed a self-monitoring \times junk food appeal interaction ($F(1, 74) = 4.16, p < .05$; fig. 2A). Specifically, among high self-monitors there was an effect of junk food appeal. Compared with those in the control condition, high self-monitors exposed to information linking junk food consumption to a generally dissociative out-group chose options perceived as healthier ($F(1, 70) = 7.92, p = .006$). The corresponding effect was not significant among low self-monitors ($F < .10, p > .80$).

Because we are interested in improving consumer health, we also examined whether the manipulation led participants to select options that were *actually* better for them. We obtained calorie and fat information for each item participants selected and used that information to calculate the percentage of fat calories in each participant’s order. We then examined this measure using the same 2 \times 2 analysis.

The analysis again revealed a self-monitoring \times junk food appeal interaction ($F(1, 74) = 4.25, p < .05$; fig. 2B). As predicted, there was an effect of junk food appeal among high self-monitors; compared to high self-monitors in the control condition, those exposed to information linking junk food to an avoidance group selected food items that contained a smaller percentage of calories due to fat ($F(1, 70) = 4.37,$

FIGURE 2

FOOD CHOICE AS A FUNCTION OF JUNK FOOD APPEAL AND DIFFERENCES IN SELF-MONITORING (EXPERIMENT 3)



$p = .04$). The corresponding effect was not significant among low self-monitors ($F(1, 70) < 1, p > .30$). The manipulation was designed to encourage healthier choices, not reduced consumption, but similar effects were also found using fat grams per order.

Discussion

The second field study further demonstrates the utility of identity-avoidance campaigns to mitigate risky consumer behaviors. Using real food choices in a naturalistic environment, the study illustrates that associating a negative health behavior with a generally dissociative out-group led people to make healthier decisions. When an avoidance group was linked to junk food choice, diner patrons chose food that both was perceived to be healthier and was actually better for them (contained a smaller percentage of calories from fat). The moderation by self-monitoring also corroborates the hypothesized role of identity signaling in this process; consistent with the notion that the effects are driven by concerns of signaling to others, they occurred among people who are more sensitive to how others view them.

GENERAL DISCUSSION

Identity signaling influences a wide variety of health decisions; teens may smoke to seem rebellious, drink to look cool, or forgo bike helmets because geeks wear them. Even when they are aware of the health consequences, consumers may continue to engage in risky behaviors that signal desired identities. Consequently, identity-based interventions may be useful in improving consumer health. Prior research has shown that consumers may diverge or avoid products adopted by out-group members to avoid signaling undesired identities (Berger and Heath 2007, 2008; White and Dahl 2006, 2007). Building on these findings, this article examines whether identity-based interventions can contaminate the identity associated with risky behaviors and thus encourage consumers to make healthier choices.

Three studies demonstrate that campaigns linking risky behaviors to dissociative identities can lead to substantial social welfare gains; people made healthier choices when risky behaviors were linked to out-groups with whom they did not want to be confused. Underage students noted consuming less alcohol (experiment 2), and eatery patrons selected less fattening food (experiment 3), when those behaviors were associated with avoidance groups. By using actual health behaviors and naturalistic settings, these studies underscore the utility of identity-shifting interventions to improve the health of populations.

In addition, the findings contribute to related literature and inform a theory of practice. While some prior research focuses on how private self-identity affects dissociative influence (White and Dahl 2006), the current findings underscore the role of social communication to others in divergence (also see Berger and Heath 2007, 2008). People who wanted to avoid others confusing them with the out-group linked to the behavior (experiment 2) or who are sensitive

to how others see them (i.e., high self-monitors, experiment 3) were particularly likely to avoid the risky behaviors.

The results also demonstrate the dynamic nature of identity signaling. Even when there was no actual change in the type of people engaging in a real-world behavior, simple manipulations were able to shift the identity associated with meaningful existing behaviors (experiment 2). This, in turn, led to healthier behavior. Consumer culture researchers have suggested that consumption meanings are malleable, and future work might extend these findings by examining how such shifts in meaning influence the persistence of cultural tastes and practices (see Berger 2008).

These findings also extend prior research to demonstrate the strength and perseverance of identity-avoidance manipulations. Most prior work has used simple laboratory paradigms in which out-group associations were made salient directly before choice, but most real-world health behaviors occur far from the interventions that aim to change them. The current results demonstrate the utility of identity-based manipulations for social policy. Even when the health behavior was physically and temporally separated from the manipulation itself, a simple intervention using an identity-avoidance appeal was enough to improve consumer health.

When considering the application of such identity-avoidance strategies, policy makers should carefully consider the social identity they use. As experiment 2 illustrated, people who want to avoid signaling the identity linked to the behavior will avoid the behavior, but people who do not mind signaling the identity may be unaffected (and could conceivably even show perverse effects). Consequently, policy makers should try to select out-groups for which most members of the target population hold dissociative attitudes. Consistent with the notion that consumers diverge to avoid being misidentified, people are particularly likely to diverge from groups that are disliked, seen as lower status, or dissimilar due to the increased costs of misidentification (Berger and Heath 2008; Bryson 1996; Simmel 1904/1957).

The out-group used will also influence the manipulation's credibility. Some graduate students drink alcohol, and some computer gamers eat junk food, and thus our manipulations should have been reasonably credible. But if the link between the social group and the behavior seems tenuous (e.g., senior citizens are the largest consumers of amphetamines), consumers may doubt the credibility of the message and, as a result, the campaign may fail.

Public visibility should also influence how easily behaviors gain (and shift) associations with different identities. If people tend to engage in a behavior in public, others should derive more of their identity-based associations with that behavior from seeing who else is doing it. Consequently, the effectiveness of identity-shifting campaigns may depend on how frequently people come across the type of others linked to the behavior. A campaign that suggests that soccer moms smoke will only be credible if a reasonable percentage of the soccer moms people see actually smoke. If people do not frequently meet soccer moms, however, or the particular behavior is more private, the campaign may be even more

effective in shifting identity associations because its assertion is less likely to be disconfirmed.

The dynamic or symbolic interactionist nature (Blumer 1969) of the identity association process can also help make such campaigns self-fulfilling. Because the identity associated with a behavior is reinforced through interactions with others, campaigns that start by changing the behavior of a few may come to affect many. If a campaign that says, "No cool people smoke anymore," leads even a few cool people to stop smoking, this may shift the identity associated with smoking, which could then have spillover effects on others' behavior. The process may consequently exhibit nonlinearities and tipping point dynamics (Schelling 1978).

This article has focused on health behaviors, but identity-shifting strategies could conceivably be useful in a broad range of prosocial domains. Research on identity and educational achievement, for example, suggests that some minority students may avoid trying hard in school because it leads their peers to ostracize them for "acting white" (Fordham and Ogbu 1986; Fryer and Torelli 2005; also see Oyserman et al. 2006). Although these findings are disheartening, they also suggest a possible solution in identity-shifting appeals. Campaigns that highlight minority achievement should shift the identity associated with doing well in school and thereby improve performance.

Health awareness campaigns have made important strides in decreasing risk behaviors, and as the present research illustrates, even more progress can be made by attending to issues of identity. Inundating consumers with risk information increases knowledge but does not always have corresponding effects on behavior. Decisions are based not only on the associated risks and benefits but also on the identity that a given choice communicates to others. Consequently, shifting perceptions of the identity associated with a risky behavior can help make better health a reality.

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