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Reducing Resistance to Narrative Persuasion About Binge Drinking: The Role of Self-Activation and Habitual Drinking Behavior

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Abstract

This study explores the effects of habitual health risk behaviors and self-activation on resistance to narrative persuasion. In two experiments, heavier drinkers were more resistant to an anti-binge-drinking narrative public service announcement (PSA) in which a binge drinker suffers a negative outcome. Specifically, heavier drinkers were more likely to generate counterarguments, unrealism judgments, and negative evaluations about the message compared to lighter drinkers or nondrinkers. However, activating self-concept when processing the persuasive narrative reduced unrealism judgments and negative evaluations, particularly among heavier drinkers. Self-activation also decreased perceived freedom threat among both heavier and lighter drinkers, which further led to higher perceived risk of binge drinking. Theoretical and practical implications are discussed.

Binge drinking can cause serious social and health problems, including drunk driving, poor school/work performance, unplanned sex, injuries, and even death (Miller, Naimi, Brewer, & Jones, 2007; Wechsler, Davenport, Dowdall, Moeykens, & Castillo, 1994). Fear appeals emphasizing the negative consequences of binge drinking are widely used, aimed at reducing excessive alcohol consumption and related risks. However, such messages are not always effective (Jessop & Wade, 2008; Kinder, Pape, & Walfish, 1980; Quick & Bates, 2010). Mental resistance is one of the most critical obstacles to anti-binge-drinking persuasion, particular for those who drink alcohol frequently and excessively. People who frequently engage in risk behaviors usually believe they are at low risk (Dillard, Midboe, & Klein, 2009) and are resistant to attitudinal and behavioral change (Freeman, Hennessy, & Marzullo, 2001; Osler, Prescott, Godtfredsen, Hein, & Schnohr, 1999). Thus, high-risk target groups such as heavier drinkers are harder to persuade than people at lower risk. A growing body of literature suggests persuasion in narrative format may help reduce resistance by transporting viewers into the story and/or encouraging viewers to identify with story characters (Green, 2006; Kreuter et al., 2007; Moyer-Gusé & Nabi, 2010). However, little is known about how people with different risk experiences react to narrative fear appeals. Heavier drinkers and lighter drinkers may undergo distinct psychological processes and generate different levels of resistance to narratives aimed at creating fear of negative consequences of binge drinking.

In addition, the impacts of habitual risk behaviors may depend on how the self is involved when processing persuasive messages. The current literature suggests two possibilities. One is that activating the self may shift audience members' mental focus from understanding the message to resisting message threats to their self-integrity

(Carver & Scheier, 1981). Especially people who frequently engage in risk behaviors may become more defensive when self-concept is activated. Another possibility is that self-activation may reduce resistance, especially among people at high risk, by making it easier to imagine the self in the story (see review in the following). This may be more likely in narratives since narrative structure can facilitate building mental imageries of the self (Escalas, 2004).

The current research explores the effects of habitual drinking behavior and self-activation on resistance to an anti-binge-drinking narrative public service announcement (PSA). By unpacking factors that may influence various dimensions of resistance to a fear appeal narrative, we intend to provide guidelines for more effective strategies for raising awareness of binge drinking risks, especially targeting heavier drinkers.

Habitual Risk Behavior and Narrative Processing

How one processes risk-related information is partially a result of one's prior risk experience, in our case, habitual drinking behavior. First, heavier drinkers usually hold a more positive attitude about drinking than lighter drinkers or nondrinkers. This is because people in general tend to maintain a positive conceptualization of the self (Leary, Tate, Adams, Allen, & Hancock, 2007) and evaluate their own risk behaviors in a positive way (Arnett, 2000; Weinstein, 1989). Heavier drinkers are motivated to justify their drinking behaviors by evaluating alcohol-induced outcomes more positively than people who are not involved in drinking (Bauman & Bryan, 1980; Wall, Hinson, & McKee, 1998). In addition, Wisers et al. (2002) explained that heavier drinkers' positive judgment about drinking is probably an outcome of interpreting their motivational "wanting" mechanism as "liking": Since I often drink, I must like it.

Second, people who habitually consume more alcohol are more likely to perceive a pro-drinking social norm than those who consume less alcohol. Heavy drinkers are likely to associate with other heavy drinkers (Leonard, Kearns, & Mudar, 2000). Thus, they are more likely to be exposed to heavy drinking behaviors and get peers' approval for drinking (Haines & Spear, 1996; Werch et al., 2000). Additionally, one's own risk behavior is also an important source and an anchoring point for social norm perception (Sherman, Presson, Chassin, Corty, & Olshavsky, 1983). Both vicarious and direct heavy drinking experiences are more available in heavier drinkers' than in lighter drinkers' or nondrinkers' memory, and thus bias heavier drinkers to perceive a more pro-drinking social norm (Houben & Wiers, 2008; Nye, Agostinelli, & Smith, 1999).

An anti-binge-drinking message that conflicts with a heavier drinker's habitual behaviors and attitudes is likely to arouse cognitive dissonance and encourage counterarguing (Rhodes, Roskos-Ewoldsen, Edison, & Bradford, 2008). While narratives, compared to nonnarratives, may shift some of an audience member's attention from persuasive arguments to story elements, to the extent that an audience member considers the persuasive arguments, a heavier drinker is likely to be more resistant than a lighter drinker. In addition, since narrative fear appeals depict negative consequences of drinking behaviors, targeting those who habitually consume more alcohol, heavier drinkers are more likely to defend their positive self-representations (Freeman et al., 2001; Kunda, 1990; Liberman & Chaiken, 1992) by challenging the believability of the message (Andrews, Netemeyer, & Durvasula, 1991; Pervin & Yanko, 1965), and generating more negative evaluations of the persuasive message (Bensley & Wu, 1991; Janis & Terwilliger, 1962) compared to lighter drinkers

or nondrinkers. Furthermore, people who frequently engage in risky behaviors tend to have high trait reactance. Since trait reactance and state reactance are closely related (Quick & Stephenson, 2008), heavier drinkers are likely to generate greater perceived freedom threat and psychological reactance to anti-binge-drinking messages than lighter drinkers.

One issue is how to define heavy and light drinkers. The Centers for Disease Control and Prevention (CDC, 2013) dichotomizes drinkers (heavy drinkers: > 15 drinks per week for men, > 8 for women). However, most studies cited in the preceding used continuous scales to measure habitual drinking behaviors. The current study defines heavier drinkers as people who drink relatively more than others in the sample, reflected by higher frequency and amount of drinking.

Self-Activation in Narrative Persuasion

When processing a narrative, a person may either activate the self or deactivate the self. Self-activation refers to “the cognitive activation of any kind of self-related knowledge” (Perugini, O’Gorman, & Prestwich, 2007, p. 135), and it is characterized by “a general heightened state of accessibility of self-related knowledge” (Stapel & Tesser, 2001, p. 743). Self-knowledge is “a self digest that summarizes one’s relations to the world and the personal consequences of these relations” (Higgins, 1996, p. 1062), and it contains many associations that can be related to incoming information, such as information in a PSA. When the self is activated, all kinds of self-related knowledge are more likely to become salient, including one’s self-knowledge toward a specific issue. In the current study, a self-activated participant encounters a binge-drinking message, making it likely that the specific self-related knowledge about drinking (e.g., one’s drinking habits, prior and imagined drinking experiences,

perceived norms and values related to drinking, and expectations of potential risks) becomes more salient. This self-activated state can be operationalized by priming self-related words, such as “I,” “self,” and “my” (Brewer & Gardner, 1996). In the nonnarrative persuasion context, self-activation has been found to increase resistance to a threatening communication (Carver, 1977; Carver & Scheier, 1981) and to decrease yielding to counterattitudinal messages (Hutton & Baumeister, 1992), because self-activation can increase the salience of one’s initial orientation (Utz, 2004) and perceived coerciveness of the threatening message (Carver, 1977). However, little research directly examines how self-activation influences people’s resistance to narrative persuasion. The current study suggests self-activation when processing narratives may reduce an audience member’s resistance to persuasion, depending on the person’s prior drinking experience.

Self-Activation Reduces Resistance

Activating self-concept can help people imagine the self in story scenarios (Chittaro & Zangrando, 2010; Escalas, 2004). One distinctive mechanism of narrative persuasion is to let the audience members vicariously experience the consequences of certain behaviors (Bandura, 2004; Nabi & Green, 2015). Different from the identification process, which simulates events from the character’s perspective (discussed in more detail later), activating the self in narrative processing simulates the events from the audience member’s own perspective. Maintaining salient self-concepts while processing a narrative facilitates audience members putting the self in the binge drinking event and envisioning its negative consequences on themselves; thus, they will perceive the story as more realistic and evoke more thoughts and feelings that are consistent with the persuasive message. Relating oneself to the events in a narrative

has also been found to decrease sensitivity to argument strength and generate more positive thoughts about the persuasive message (Escalas, 2004). Since such self-focused imagination is driven by people's internal motivation to understand the event's potential consequences on the self rather than external pressure to comply with the persuasive message, audience members seem less likely to perceive their freedom being threatened (Brehm & Brehm, 1981). In addition, imagining self in the story may leave fewer mental resources available to detect the persuasive intent, leading to lower perceived coerciveness of the message.

If so, activating self-concept would help reduce resistance to anti-binge-drinking messages, particularly among heavier drinkers. When the self is activated, heavier drinkers can easily associate the depicted events with self-relevant constructs and imagine the self as the actor in the story scenario, thus perceive stronger relevance and less resistance to the persuasive message. In contrast, self-activated lighter drinkers and nondrinkers may realize the story event is not relevant to them and feel it is difficult to put the self in since they are not engaged in the risk behavior, resulting in little impact in reducing resistance. In addition, lighter drinkers or nondrinkers initially hold more negative attitudes toward drinking than heavier drinkers (Bauman & Bryan, 1980; Wiers et al., 2002), which is congruent with the persuasive intent, leaving little space to further reduce resistance. So the effects of self-activation would be less obvious on lighter drinkers or nondrinkers.

The Distinctive Role of Self-Activation in Narrative Persuasion

Activating the self may function differently in narrative persuasion mechanisms than transportation and identification. Transportation describes an experience of immersing the self into the narrative world while temporarily leaving the real world

(Green & Brock, 2000). Identification is a process in which the audience takes the character's perspective, imagines the character's mental states, and making one's own identity and experience less accessible (Cohen, 2001). Both transportation and identification emphasize losing the self. However, instead of losing the self, self-activation increases the salience of one's real-world experience (Kaufman & Libby, 2012), making it likely to be independent of transportation and identification. To clarify the distinctive role of self-activation in reducing resistance in narrative persuasion, we raise the following research question:

RQ1: Does self-activation influence audience members' (a) transportation and (b) identification with the story character?

Previous studies have conceptualized different dimensions of resistance, and suggest they may have different impacts on persuasion outcomes (Moyer-Gusé & Nabi, 2010). In the following section, we specify four forms of resistance in the narrative context, and examine how drinking habits and self-activation influence various forms of resistance interactively.

Conceptualizing Resistance in Narrative Persuasion

Self-activation and habitual risk behavior may influence four different forms of resistance to a fear appeal narrative—counterarguing, challenging realism of the narrative, negative evaluations of the story elements, and perceived freedom threat. This conceptualization integrates the key cognitive components (i.e., counterarguing and challenging realism of the narrative), affective components (i.e., a large part of negative evaluations of the message), and the motivational components of resistance (i.e., perceived freedom threat). Built on Moyer-Gusé and Nabi's (2010) approach that conceptualizes counterarguments and perceived freedom threat as key components

of resistance, we further identify unrealism judgments and negative evaluations of story elements as unique forms of resistance to narrative persuasion.

Counterarguing

The most commonly discussed cognitive form of resistance is counterarguing against what a message advocates (Greenwald, 1968; Petty & Cacioppo, 1996). Counterarguments are thoughts inconsistent with and/or reject the persuasive arguments. In our study, counterarguments explicitly reject the PSA's anti-binge-drinking arguments or advocate the positive aspects of drinking. Although previous research has demonstrated narrative persuasion induces less counterarguing compared to other forms of persuasion (Green & Brock, 2000), it remains an important component of resistance to narrative persuasion. The tendency to counterargue against a story depends on characteristics of the audience member and the story character. When audience members see a story character behave like them but have negative experiences, audience members may be more likely to generate thoughts to justify their own risk behaviors (Arnett, 2000; Weinstein, 1989). Thus, heavier drinkers will generate more counterarguments than lighter drinkers. However, with activated self-concept, people (especially heavier drinkers) are likely to imagine the self in the story events, which is found to decrease their sensitivity to argument strength and induce more positive thoughts about the persuasive message (Escalas, 2004), thus decreasing the likelihood of counterarguing.

Unrealism Judgment

Challenging the realism of a story is a form of resistance unique to narrative persuasion. Realism perception is an audience member's judgment about a story (a) in correspondence to the real world—whether the depicted event could actually

happen in the real world (termed “external realism” in Busselle & Bilandzic, 2008; “authenticity” in Guttman, Gesser-Edelsburg, & Israelashvili, 2008; and “absolute realism” in Shapiro, Peña-Herborn, & Hancock, 2006)—and (b) regarding its internal logic—if it were to happen, whether it would be like this (termed “narrative realism” in Busselle & Bilandzic, 2008; and “relative realism” in Shapiro et al., 2006).

Challenging the realism of an anti-binge-drinking narrative can involve both aspects: if the binge drinking depicted in the PSA seems unlikely to happen in the real world, and/or if it happened the portrayal would not make sense. People motivated to resist the anti-binge-drinking message, heavier drinkers particularly, are more likely to notice deviations from real-life cases and the lack of strong causal connections between the series of events and to perceive the story unrealistic. Heavier drinkers also tend to have more positive experience of drinking (Houben & Wiers, 2008; Wiers et al., 2002), making it easier to challenge the negative binge drinking depictions. However, when the self is activated, audience members are likely to put the self into the story events, follow the internal logic of the story, and suspend disbeliefs (Weber & Wirth, 2014), attenuating the impacts of drinking habits on unrealism judgment.

Negative Evaluations of Story Elements

Different from nonnarrative persuasion, narratives persuade people by engaging audience members into the story and building close connections between audience members and the characters (Green & Brock, 2000; Murphy, Frank, Chatterjee, & Baezconde-Garbanati, 2013; Slater & Rouner, 2002). Unfavorable evaluations about story-related properties (e.g., dislike the topic or characters or other features, perceive low-quality production) interfere with this engagement process. Although recognized as an important obstacle to persuasion, less is known about how habitual

drinking behaviors and self-activation influence negative narrative evaluations. Given that negative evaluations of the story elements are similar to counterarguments and unrealism judgment as resisting processes, we suggest their pattern of influence should be consistent with other forms of resistance.

Perceived Freedom Threat

People sometimes resist because they perceive that outside pressure—in this case from a persuasive message—constrains their freedom to think, choose, or act, and they have the motivation to restore their freedom. This motivational component of resistance is perceived freedom threat (Brehm & Brehm, 1981). Given that the main goal of narrative PSAs is to persuade target audiences, the persuasive intent is usually clear and explicit, making people most at risk (i.e., heavier drinkers) more likely to perceive their freedom of drinking to be constrained. However, self-activated audience members understand the story by engaging the self in the story, making it more likely they perceive the persuasive meaning to come from themselves, not from an external source telling them what to do. Therefore, self-activation in narrative persuasion should reduce perceived freedom threat, particularly among those who habitually drink more alcohol.

Our previous analyses of habitual drinking behavior and self-activation on resistance should apply to all the four dimensions of resistance. Therefore, we propose the following hypotheses:

H1: Viewers will generate more (a) counterarguments, (b) unrealism judgments, (c) negative evaluations, and (d) perceived freedom threat as they more frequently engage in drinking behaviors.

H2: Self-activation attenuates the effect of habitual drinking behaviors on resistance such that activating self-concept would be more likely to reduce viewers' (a) counterarguments, (b) unrealism judgments, (c) negative evaluations, and (d) perceived freedom threat as they more frequently engage in drinking behaviors.

Effects of Resistance on Risk Perception

The four forms of resistance may work against the goal of raising people's awareness of the danger of binge drinking, leading to less effective persuasion. For example, Slater and Rouner (1996) found that thoughts incongruent with a messages advocating destructive influences of alcohol decreased perceived harmfulness of alcohol. Also, since stories convince people by their embedded causality (Dahlstrom, 2010, 2012) and lifelikeness (Nabi & Green, 2015), if audience members doubt the internal logic or the authenticity of a story, it becomes more difficult to convince them of the negative consequences of binge drinking. Similarly, negative evaluations of the story derogate perceived quality of the message and source credibility, making audience members less likely to conform to the persuasive message (Jones, Sinclair, & Courneya, 2003). If people perceived the message threatens their freedom, they would be motivated to restore their self-integrity, be less likely to admit they are at risk (Dillard, McCaul, & Klein, 2006; Dillard & Shen, 2005), have lower intentions to drink responsibly (Pavey & Sparks, 2009), or even be led to boomerang effects of more alcohol consumption (Engs & Hanson, 1989). Therefore, we hypothesize:

H3: The four forms of resistance decrease people's perception of one's own risk regarding binge drinking.

Combining H3 with the previous hypotheses (H1–H2), we could infer that self-activation and habitual drinking behavior indirectly influence people’s risk perception through the four forms of resistance.

H4: The four forms of resistance mediate the effects of (a) self-activation and (b) habitual drinking behavior on risk perception of binge drinking.

Experiment 1

Method

Participants and Procedures

Two hundred and thirty adult American participants were recruited through Amazon’s Mechanical Turk (MTurk) and directed to our experiment on Qualtric.com. Among the participants, 79% were in the 18–40 years old category; 64% were male; about 50% were Asian Americans, and 38% were Caucasians. The participants were required to be native English speakers living in the United States and to have a high MTurk approval rating (>95%) to ensure the quality of their responses. Participants who completed the study received compensation delivered to their Amazon accounts.

As part of the self-concept manipulation, participants were first asked to read a few paragraphs describing a trip to a city. They were instructed to count certain words (see details in the following). Then they watched a 50-second PSA in which a young man is struck by a car as a result of binge drinking (see descriptions later). After watching the story, participants completed a thought-listing procedure. They were asked to write down whatever came to their mind while watching the story. Finally, participants answered a set of questions measuring their viewing experience, perceived freedom threat, and risk perception. The last questions were about ethnicity and other demographics.

Stimulus

A large number of PSAs were examined to find one that met the following criteria: a PSA that the participants had not seen before, that was professionally produced, and that showed the drinking behavior in a relatively realistic context with clear negative consequences. In the PSA selected, a college-age White male was having fun with friends, including binge drinking in a bar. A typical party atmosphere was created with loud music and shining lights; while there are party noises, there is no spoken dialogue. The number of drinks he consumed is implied by the logo on his shirt. For example, when he consumed 11 drinks, the logo on his shirt turned to 11. After consuming 15 drinks he steps out the bar, seems barely conscious, and is struck by an automobile as he attempts to cross the road. It was produced and distributed by the Queensland government in Australia, as part of the “Every Drink Counts” campaign. The fact that the PSA came from Australia guaranteed that participants would not have seen it before. The young people and the activities that make up the bulk of the PSA could easily be from the United States. Additionally, there is no dialogue or other clue about the PSA’s origin until the last 6 seconds of the PSA, when a voiceover with a mild Australian accent says “Excessive drinking can leave you with permanent hangover. Don’t go too far. Every drink counts.” This is followed by a very rapid statement that the PSA is authorized by the Queensland government, Brisbane. It seemed unlikely that participants would notice or be influenced by cultural differences, given the largely visual nature of the narrative presentation.

Manipulation

We manipulated salience of self-concept by randomly assigning participants to count different sets of words in a health-irrelevant text before exposure to the persuasive

narrative. The manipulation is modeled after Brewer and Gardner (1996) and was validated by Stapel and Tesser (2001) and Perugini et al. (2007). In the self-activated condition, participants counted first-person pronouns, including “I,” “me,” “my,” and “myself.” In the control condition, participants counted articles, including “the,” “a,” and “an.”

Although this manipulation is well established in the literature, to check whether our self-activation manipulation was effective, we conducted a separate study. One hundred and eight MTurk participants were recruited. We used the manipulation just described, followed by a 1-minute distractor video. Then the participants were instructed to list as many positive and negative traits of themselves as possible. Two participants were excluded from the final analysis because they generated thoughts irrelevant to personal traits. According to the conceptual definition of self-activation, self-activated participants should have more salient self-related concepts in mind and thus have higher accessibility to their personal traits than participants in the control condition. Consistent with this prediction, our results showed participants in the self-activated condition could think of significantly more personal traits ($M = 5.81, SE = 0.36$) than participants in the control condition ($M = 4.47, SE = 0.46$), $t(104) = 2.25, p = .026$, suggesting the manipulation of self-activation was effective.

Measures

Three out of the four forms of resistance were measured by coding participants' thoughts from the thought-listing task. Participants generated an average number of 4.5 thoughts ($SD = 1.38$). Three undergraduate coders were trained and coded a total of 1125 thoughts under three categories: counterarguments (e.g., “drinking is fun,” “drinking has a social function”), unrealism judgments (e.g., “I thought the end was

exaggerated when he got ran over by a car”), and negative evaluations (e.g., “I hate the character,” “the event is disgusting,” “this video is boring”). The intercoder reliabilities using Krippendorff’s alpha are $\alpha_{\text{counterargument}} = .77$, $\alpha_{\text{unrealism judgment}} = .69$, and $\alpha_{\text{negative evaluation}} = .72$. Coders discussed and resolved all the disagreements. Since most participants generated no more than one thought for each category ($M_{\text{counterargument}} = 0.15$, $SE = 0.50$; $M_{\text{unrealism judgment}} = 0.17$, $SE = 0.49$; $M_{\text{negative evaluation}} = 0.59$, $SE = 0.99$), we recoded the number of resistant thoughts for each participant into a set of dichotomous variables: whether or not the participants generated any counterarguments, unrealism judgments, or negative evaluations about the message.

We measured perceived freedom threat through four items capturing the extent to which participants think the message threatens their freedom (Dillard & Shen, 2005). Sample items include “The message tried to make a decision for me,” and “the message threatened my freedom to choose.” Participants rated their agreement with each statement along a 1–7 Likert scale (1 = *strongly disagree*, 7 = *strongly agree*). We averaged the score of these four items into a perceived freedom threat scale (Cronbach’s $\alpha = .71$, $M = 3.58$, $SD = 1.25$).

We assessed transportation with 12 items from a previously validated transportation scale (Green & Brock, 2000) asking audience’ cognitive, emotional, and imagery experience with the story (Cronbach’s $\alpha = .73$, $M = 4.59$, $SD = 0.78$). We measured identification using the 5-item identification scale (Tal-Or & Cohen, 2010), including statements about understanding the events in a way similar to the character, and having similar feelings to the character (Cronbach’s $\alpha = .84$, $M = 4.05$, $SD = 1.38$). Risk perception was measured by asking participants to estimate how likely they think it is

that binge drinking would do harm to their health on a 1–7 Likert scale (1 = *extremely low*, 7 = *extremely high*; $M = 5.64$, $SD = 1.50$).

Habitual drinking behavior was measured at the very end in order to eliminate the possibility that retrospection about past behaviors would activate self-related concepts, confounding the effects of the self-activation manipulation. Habitual drinking behavior is not as flexible as cognitive, affective, or judgment measures, so it seemed less likely to be influenced by the manipulation or other questions.

“Heavier/lighter drinker” in this article is a continuous variable based on the product of a person’s drinking frequency and the amount a person typically drinks. Our measure of participants’ habitual alcohol consumption was based on the Behavioral Risk Factor Surveillance System (BRFSS) survey (CDC, 2013) assessing drinking frequency on a 1–7 scale (1 = *never*; 2 = *less than once a month*; 3 = *once a month*; 4 = *2–3 times a month*; 5 = *once a week*; 6 = *2–4 times a week*; 7 = *more than 5 times a week*) and amount of drinking for each time on a 1–5 scale (1 = *none or less than a drink*; 2 = *1–2 drinks*; 3 = *3–4 drinks*; 4 = *5–6 drinks*; 5 = *7 or more drinks*). This product index is proportional to but is not the actual number of drinks people consume every week. We consider a person a heavier drinker as that person consumes alcohol more frequently and with larger amount each time compared to other participants in the sample. We also measured whether participants binge drank in the last 30 days (consuming 5 or more drinks for men or 4 or more drinks for women per occasion). The binge-drinking rate among MTurk participants we sampled (15.7%) was comparable to that in the BRFSS national survey (16.8%).

Analytical Approach

To test the effects of habitual drinking behavior, self-activation and their interaction on different forms of resistance (H1–H2), we performed a series of binary logistic regression analyses with whether or not participants generated counterarguments, unrealism judgments, and negative evaluations as the dependent variables, and a linear regression with participants' level of perceived freedom threat as the dependent variable.

Effects of the four forms of resistance on risk perception (H3) were tested through multiple linear regression analysis, and the overall mediation model (H4) was tested using the MEDIANTE macro for SPSS (Hayes & Preacher, 2014). It models the influences from self-activation and habitual drinking behavior on risk perception, which are mediated by the four forms of resistance. The nonparametric bootstrapping technique has the advantages of allowing multiple predictors and multiple mediators, and having no assumption of the normal sampling (see Preacher & Hayes, 2008).

Results

Effects of Self-Activation on Transportation and Identification

To examine the distinctive role of self-activation in narrative persuasion, our research question asks whether self-activation would influence audience members' transportation and identification. Results showed self-activation did not significantly influence transportation ($B = 0.10, p = .50$) or identification ($B = 0.07, p = .81$). This is consistent with our conceptualization that self-activation functions independently of transportation or identification. Therefore, we did not consider these two constructs in the following analyses.

Effects of Habitual Drinking Behavior and Self-Activation on Resistance

Hypothesis 1 predicts that as people habitually consume more alcoholic drinks, they are more likely to generate (a) counterarguments, (b) unrealism judgments, (c) negative evaluations and (d) higher level of perceived freedom threat compared to people who habitually consume less alcohol. We found that heavier drinking behavior was associated with higher likelihood of generating counterarguments, $Wald(1) = 4.82$, odds ratio (OR) = 1.06, $p = .028$, and challenging the realism of the story, $Wald(1) = 17.33$, OR = 1.28, $p < .001$. The ORs (odds ratios) indicate that increasing habitual weekly drinking by 1 unit (approximately 1 drink per week) is linked to 1.06 times more likely to generate counterarguments and 1.28 times more likely to challenge the plausibility or typicality of the story. However, habitual drinking behaviors did not affect the likelihood of generating negative evaluations, $Wald(1) = 1.58$, OR = 1.03, $p = .21$, or the level of perceived freedom threat ($B = 0.02$, $p = .08$). Thus hypothesis 1 was partially supported (see Table 1a).

Table 1a. Regression analyses of the effects of habitual drinking behavior, self-activation and their interaction on four forms of resistance (Experiment 1).

	Counterargum ents, <i>B (SE)</i>	Unrealism judgments, <i>B (SE)</i>	Negative evaluations, <i>B (SE)</i>	Perceived freedom threat, <i>B (SE)</i>
Constant	-2.79*** (0.41)	-3.56*** (0.63)	-0.36 (0.23)	3.58*** (0.13)
Drinking behavior	0.05* (0.02)	0.25*** (0.06)	0.03 (0.02)	0.02 (0.01)
Self-activation	0.41 (0.48)	1.10 (0.78)	-0.82** (0.30)	-0.35* (0.16)
Self × Behavior		-0.22*** (0.07)		
Nagelkerke R^2	.06	.24	.05	.04

Note. $N = 226$. Logistic regression was applied to counterarguments, unrealism judgments, and negative evaluations (unstandardized coefficients are reported in the table and odds ratios are reported in the main text). Linear regression was applied to

perceived freedom threat. There was no interaction effect of self-activation and drinking behavior on counterarguments, negative evaluations, and perceived freedom threat, so the interaction term was removed from the model for these three forms of resistance.

* $p < .05$; ** $p < .01$; *** $p < .001$.

Table 1b. Regression analysis of the effects of habitual drinking behavior, self-activation and their interaction on four forms of resistance (Experiment 2).

	Counterarguments,	Unrealism judgments,	Negative evaluations,	Perceived freedom threat,
	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>
Constant	-3.62*** (0.64)	-2.34*** (0.60)	-2.55*** (0.64)	3.74*** (0.19)
Drinking behavior	0.16*** (0.03)	0.21*** (0.04)	0.10** (0.04)	0.04 (0.05)
Self-activation	-0.29 (0.45)	0.84 (0.79)	1.43 (0.80)	-0.34* (0.12)
Self × Behavior		-0.19*** (0.06)	-0.10* (0.05)	
Nagelkerke R^2	.29	.40	.07	.04

Note. $N = 156$. Logistic regression was applied to counterarguments, unrealism judgments, and negative evaluations (unstandardized coefficients are reported in the table and odds ratios are reported in the main text). Linear regression was applied to perceived freedom threat. There was no interaction effect of self-activation and drinking behavior on counterarguments and perceived freedom threat, so the interaction term was removed from the model for these two forms of resistance.

* $p < .05$; ** $p < .01$; *** $p < .001$.

Hypothesis 2 predicts that activating self-concept reduces heavier drinkers' resistance to persuasion. Results showed an interaction effect of self-activation and drinking habit on unrealism judgments, Wald(1) = 10.77, OR = 0.80, $p = .001$. Drinking habit had a weaker influence on the likelihood of generating unrealism judgments about the persuasive story ($B = 0.02$) when self-concept was activated than when self-concept

was not activated ($B = 0.25$), supporting H2b. No interaction effects were found on counterarguing, $Wald(1) = 1.00$, $OR = 0.95$, $p = .32$, negative evaluations, $Wald(1) = 1.45$, $OR = 0.95$, $p = .23$, or perceived freedom threat, $B = -0.02$, $p = .49$. But a main effect of self-activation was found on negative evaluations, $Wald(1) = 7.35$, $OR = 0.44$, $p = .007$. Participants with activated self-concept were less likely (27%) to generate negative evaluations about the message compared to participants whose self-concept was not activated (45%). Self-activation also decreased people's perceived freedom threat, $B = -0.35$, $p = .03$. The main effect of self-activation on the other two forms of resistance was not significant.

Effects of Resistance on Risk Perception

Hypothesis 3 predicts resistance will decrease perception of binge drinking risk.

Multiple linear regression analysis showed that among the four forms of resistance, only perceived freedom threat significantly predicted risk perception

($B = -.26$, $p = .001$). Counterarguing, unrealism judgment, and negative evaluations did not influence participants' perceived risk of binge drinking, all $ps > .05$ (see Table 2a). Therefore, H3a is partially supported.

Table 2a. Regression analysis of the four forms of resistance on risk perception (Experiment 1).

Variable	Risk perception	
	Model 1a	Model 2a
Constant	5.66***	6.48***
Drinking behavior	-0.01	-0.003
Self-activation	0.03	0.01
Counterarguments		-0.19
Unrealism judgments		0.13
Negative evaluations		0.25
Perceived freedom threat		-0.26***
R^2	.002	.07
F	0.22	2.32*

ΔR^2	.06
ΔF	3.36**

Note. $N = 205$.

* $p < .05$; ** $p < .01$; *** $p < .001$.

Mediation Analysis: Resistance as the Mediator in Narrative Persuasion

Since perceived freedom threat was the only form of resistance that predicted risk perception, it was proposed as the sole mediator in the model. Self-activation was entered as a predictor in the mediation model. Habitual drinking behavior was entered as a covariate. The model captured the influence of self-activation on risk perception, mediated by perceived freedom threat.

Using 5000 bootstrap resamples, the 95% confidence intervals (CI) for the indirect effect of self-activation through perceived freedom threat did not include zero for perceived risk for the self ($B = 0.10$, $CI = .01$ to $.23$). The direct effect from self-activation on risk-perception was not significant ($B = -0.04$, $p > .05$), indicating perceived freedom threat fully mediated the influence of self-activation on risk perception. Hypothesis 4a is partially supported. Habitual drinking behavior had no direct or indirect impact through any forms of resistance on risk perception, so H4b is rejected. The mediation model is illustrated in Figure 1.

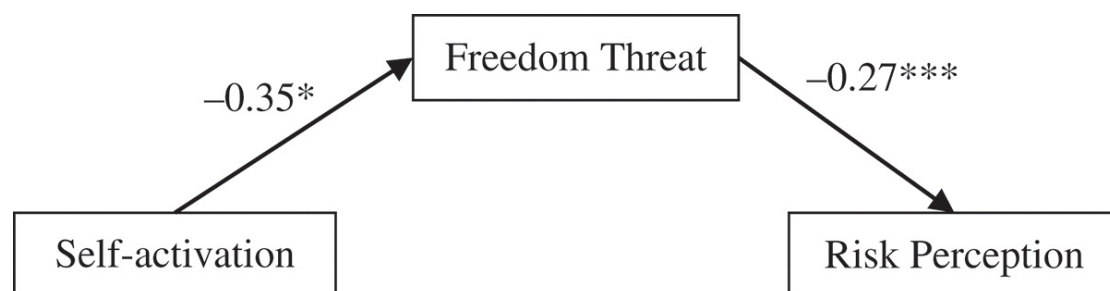


Figure 1. Effect of self-activation on perceived risk of binge drinking via perceived freedom threat (Experiment 1).

Testing Alternative Model

Since the four forms of resistance and risk perception were measured all together after exposure to the anti-binge-drinking PSA, the causal direction of influence from resistance to risk perception needs further investigation. Therefore, we tested the alternative mediation model specifying an indirect effect path from self-activation to perceived freedom threat through risk perception. This mediation path was not significantly different from zero based on 5000 bootstrap samples, $B = -0.01$, $CI = -.10$ to $.06$. By excluding this alternative process of influence, we are more confident about the current conceptual model that describes the direction of influence from resistance to risk perception.

Discussion

Experiment 1 indicates that activating self-concept when processing persuasive stories reduces unrealism judgment of the story especially for heavier drinkers, and reduces negative evaluations and perceived freedom threat in general. Through lower perceived freedom threat, self-activation further increases viewers' perceived risk of binge drinking. Media entertainment research suggests people are attracted to sad stories with undesirable endings partially because people can reflect on meaning and learn from such experience (Oliver, 2008; Slater, Johnson, Cohen, Comello, & Ewoldsen, 2014). Maintaining salient self-concept and imagining the negative consequences of binge drinking may enhance this vicarious learning process thus reduce resistance and perceive a higher level of risk for the self.

To avoid sensitizing participants or interfering with the self-activation manipulation, participants' drinking behaviors were measured as the very last step. However, it raises the possibility that participants' recall of their drinking behaviors was influenced by the earlier self-activation manipulation. Studies have shown that salient self-

concept makes memory of self-relevant experience more accurate compared to when self-concept is not activated (Gibbons, 1990; Scheier, Carver, & Gibbons, 1979). Although the impact of self-activation on participants' report of their habitual drinking behaviors was not significant at alpha of .05 ($B = 0.30, p = .08$), we still could not exclude the possibility that salient self-concept influenced participant's memory of past behaviors. Experiment 2 was designed to address this concern.

Experiment 2

To eliminate the impact of self-activation on behavioral report, Experiment 2 was executed in two steps, with habitual drinking behavior measured at least a month before the experiment manipulating self-activation. Experiment 2 also examined the hypotheses among a different group of participants—college students, who have a high rate of alcohol consumption and binge drinking (Cyders, Flory, Rainer, & Smith, 2009; Hingson, Heeren, Winter, & Wechsler, 2005) and are vulnerable to the negative consequences of binge drinking (Bonnie & O'Connell, 2004; Hingson, Zha, & Weitzman, 2009).

Method

Participants and Procedure

One hundred and fifty-five college students at a university in the northeastern United States were recruited to participate in this study for extra credit. Among the participants, 30% were male; 61% were Caucasians, 20% were Asian Americans, and 8% were African Americans.

At least a month before the experimental manipulations, participants completed a questionnaire that contained demographic and media use questions in addition to drinking behavior measures. One month later, they participated in a study presented

as an independent study including the self-activation manipulation, viewing an anti-binge-drinking story, and other measures identical to Experiment 1.

In Experiment 2, participants' average score on the habitual drinking scale ($M = 12.57$, $SD = 8.35$) was much higher than that in the first experiment ($M = 6.70$, $SD = 7.44$) and a larger number of the college student participants reported binge drinking in the past month (39.9%) than the MTurk participants in Experiment 1 (15.7%). That is also higher than the CDC's BRFSS 2013 data for the group 18–24 years old (30.3%) for the state, and higher than the binge drinking rate for that age group nationally (26.1%).

Participants generated an average number of 4.7 thoughts ($SD = 1.06$). Two undergraduate students who coded thoughts from Experiment 1 were trained and coded a total of 731 thoughts in Experiment 2. The intercoder reliability for each category is acceptable: Krippendorff's $\alpha_{\text{counterargument}} = .90$, $\alpha_{\text{unrealism judgment}} = .82$, and $\alpha_{\text{negative evaluation}} = .73$. Coders discussed and resolved all the disagreements. As in Experiment 1, most participants generated no more than one thought for each category ($M_{\text{counterargument}} = 0.27$, $SE = 0.60$; $M_{\text{unrealism judgment}} = 0.54$, $SE = 0.80$; $M_{\text{negative evaluation}} = 0.28$, $SE = 0.62$); using the same reasoning as in Experiment 1, we recoded the number of resistant thoughts into a set of dichotomous variables. Other measures including perceived freedom threat (Cronbach's $\alpha = .71$, $M = 3.71$, $SD = .98$), risk perception ($M = 5.39$, $SD = 1.37$), transportation (Cronbach's $\alpha = .76$, $M = 4.15$, $SD = 0.78$), and identification (Cronbach's $\alpha = .77$, $M = 3.62$, $SD = 0.92$) were measured in the same way as in Experiment 1.

Results

Effects of Self-Activation on Transportation and Identification

Consistent with the first experiment, we found self-activation had no significant impacts on people's transportation ($B = 0.08, p = .71$) or identification ($B = 0.10, p = .70$), indicating they are independent processes of influence in narrative persuasion.

Effects of Habitual Drinking Behavior and Self-Activation on Resistance

Results showed that heavier drinking behavior predicted higher likelihood of generating counterarguments, $Wald(1) = 22.48, OR = 1.17, p < .001$; unrealism judgments, $Wald(1) = 21.66, OR = 1.23, p < .001$; and negative evaluations, $Wald(1) = 6.70, OR = 1.10, p = .01$ (see Table 1b). This means that increasing habitual weekly drinking by 1 unit (approximately 1 drink per week) is linked to being 1.17 times more likely to generate counterarguments, 1.23 times more likely to challenge the plausibility or typicality of the story, and 1.10 times more likely to generate negative evaluations of the story. Thus H1a, H1b, and H1c were supported. However, habitual drinking behavior did not significantly influence the level of perceived freedom threat, $B = 0.01, p = .23$, rejecting H1d. These results largely replicated Experiment 1, except that habitual drinking behavior significantly influenced negative evaluations in Experiment 2.

Self-activation moderated the effects of habitual drinking behavior on participants' likelihood of generating unrealism judgments, $Wald(1) = 12.38, OR = 0.82, p < .001$, and negative evaluations about the persuasive story, $Wald(1) = 4.40, OR = 0.90, p = .036$. Specifically, habitual drinking behavior had a weaker influence on the likelihood of generating unrealism judgments ($B = 0.01$) when self-concept was activated than when self-concept was not activated ($B = 0.21$), supporting H2b. Similarly, when participants' self-concept was not activated, heavier drinking habit

increased the likelihood of generating negative evaluations about the anti-binge-drinking PSA ($B = 0.10$); however, when participants' self-concept was activated, heavier drinking habit seemed to have little influence on the likelihood of evaluating the message negatively ($B = -0.01$), supporting H2c. In other words, self-activation made heavier drinkers less likely to generate unrealism judgments and negative evaluations about the persuasive narrative compared to the non-self-activation condition (see Table 1b). There was also a significant main effect of self-activation on reducing perceived freedom threat, $B = -0.34$, $p = .03$.

Effects of Resistance on Risk Perception and Mediation Analysis

Consistent with Experiment 1, only perceived freedom threat among the four forms of resistance significantly influenced risk perception, $B = -0.25$, $p = 0.03$ (see Table 2b). Therefore, H3 is partially supported. Perceived freedom threat was entered as the sole mediator in the model.

Table 2b. Regression analysis of the four forms of resistance on risk perception (Experiment 2).

Variable	Risk perception	
	Model 1b	Model 2b
Constant	5.79***	6.68***
Drinking behavior	-0.04**	-0.03#
Self-activation	0.11	0.03
Counterarguments		-0.48
Unrealism judgments		0.10
Negative evaluations		0.06
Perceived freedom threat		-0.25*
R^2	.05	.10
F	3.83*	2.66*
ΔR^2		.05
ΔF		2.03#

Note. $N = 154$.

$p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.

Results of the mediation analysis replicated the findings in Experiment 1. Using 5000 bootstrap resamples, the 95% confidence intervals (CI) for the indirect effect of self-activation on risk perception through perceived freedom threat did not include zero ($B = 0.09$, $CI = .01$ to $.24$). The direct effect of self-activation on risk-perception was not significant ($B = 0.02$, $p > .05$). Thus, perceived freedom threat fully mediated the influence of self-activation on risk perception. Hypothesis 4a is partially supported. Habitual drinking behavior only had a direct effect on risk perception ($B = -0.03$, $p = .01$), so H4b is rejected. The mediation model for Experiment 2 is illustrated in Figure 2. Consistent with the first experiment, the alternative mediation path from self-activation to perceived freedom threat through risk perception is less likely because it was not significantly different from zero based on 5000 bootstrap samples, $B = -0.01$, $CI = -.08$ to $.04$.

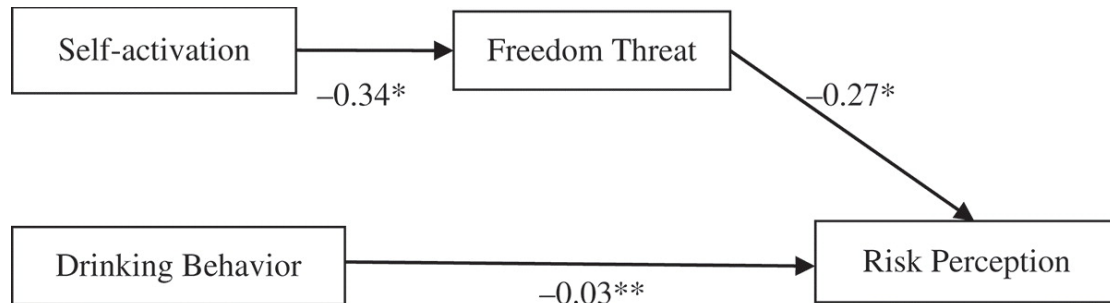


Figure 2. Effect of self-activation on perceived risk of binge drinking via perceived freedom threat (Experiment 2).

General Discussion

These two experiments consistently show that self-activation decreased viewers' perceived freedom threat to an anti-binge-drinking narrative with fear appeal, and the reduced perceived freedom threat leads to higher perceived risk of binge drinking. Although not linked to risk perception, self-activation also reduced other forms of resistance to a persuasive narrative, including unrealism judgments and negative

evaluations, particularly for heavier drinkers who are most at risk. Overall, the results support theories indicating that self-activation reduces resistance and facilitates narrative persuasion. We interpret the decrease in resistance as a result of engaging the self in the story scenarios and envisioning the negative consequences of binge drinking. Since heavier drinkers have drinking habits and experiences similar to those of the main character, this makes their imaginative process more fluent than lighter drinkers'. It implies that the mechanism for effective narrative persuasion may not only be loss of self or making self-concept inaccessible (as described in transportation and identification theories) when processing a story, but may also be actively relating oneself to the story and imagining the self in the depicted events.

Previous research shows that it is often more difficult to influence people at high health risk, since unrealistic optimism about risks and resistance to behavioral changes are usually stronger among frequent risk takers compared to those who are already committed to low risk and healthy behaviors (McKenna, Warburton, & Winwood, 1993). Our finding that self-activation can reduce heavier drinkers' resistance may offer a means to effectively influence target audience whose actual risk level is high.

There are several potential methods to make self-concept more salient when processing narrative health messages. Evidence from neural studies shows that taking the first-person perspective, in which mental states are centered upon oneself, as opposed to the third-person perspective, in which mental states are ascribed to someone else, is constitutive of self-consciousness and associated with increased simulation of behaviors and inner rehearsal for the individual's future (Gusnard, Akbudak, Shulman, & Raichle, 2001; Vogeley et al., 2004). This suggests that if a

persuasive story could be designed to encourage first-person perspective taking, people would be more likely to maintain salient self-concept and be less resistant to the message. Another way is to use a character that has identical ethnicity, has similar personalities, or shares autobiographic experiences with the target audience. With higher perceived similarity with the character, audience members will be more likely to activate their self-concept when processing the persuasive narrative.

Despite different groups and somewhat different designs, findings from the two experiments were largely consistent. In Experiment 1, participants were heavily Asian, male, and relatively older, while in Experiment 2, participants were largely Caucasian, female, and younger. The two groups also differed in their drinking habits—college students in the second experiment generally consumed more alcohol than the average person in the first experiment.

One slight difference between the two experiments is that in Experiment 1 we only found a main effect of self-activation on negative evaluations instead of the significant interaction between self-activation and drinking habits in Experiment 2. This was probably due to the different experimental designs and participant samples. In the first experiment, habitual drinking behavior was measured after the self-activation manipulation and may have been affected by this manipulation. Thus, the effects of drinking habit and its interaction with self-activation on resistance could be suppressed. Another possibility is that participants on average had a lower level of alcohol consumption in Experiment 1 than in Experiment 2, resulting in a smaller difference between the relatively heavier and lighter drinkers. The limited variances may result in an interaction effect that was not statistically significant.

Although we expected self-activation and habitual drinking behaviors would interact to influence viewer's perceived freedom threat, we only found a main effect of self-activation in reducing perceived freedom threat. One possible explanation is that everybody, regardless of his or her drinking habits, would perceive a certain level of freedom constraint when the message explicitly demonstrates its persuasive intent. This is the case for our stimulus material, which clearly discourages binge drinking by depicting severe negative consequences of binge drinking. When self-concept is activated, both heavier and lighter drinkers could imagine themselves in the story and envision potential risks of binge drinking, making them less likely to perceive the persuasive message as pressure from an outside source that threatens one's freedom. Therefore, self-activation would equally decrease perceived freedom threat for heavier and lighter drinkers/nondrinkers.

As increasing research attention has been focused on using narratives to deliver health persuasion message, we believe different aspects of narrative persuasion, in addition to transportation and identification theories, merit investigation, including the role of self-activation explored in this study. Indeed, the nonsignificant relationship between self-activation and transportation, or identification, indicates that the impact of self-activation on the four forms of resistance is independent of transportation or identification. Even if self-activation may be related to narrative involvement (e.g., transportation, identification), that relationship is complex and independent of the concerns here. On one hand, involvement in a story (i.e., transportation) and involvement with a character (i.e., identification) require loss of self-awareness (Green & Brock, 2000) and limited accessibility to one's own experience (Cohen, 2001). Research has found that salient self-concept disrupts the state of transportation and

identification (Kaufman & Libby, 2012). On the other hand, activating the self may make people, especially those with experience relevant to the theme of the story, perceive higher similarity with the character, and thus be more likely to be transported (Green, Brock, & Kaufman, 2004) and identify with the character (Cohen, 2001; Jose & Brewer, 1984). However, the latter is less likely when processing characters with negative outcomes. Future research is encouraged to articulate these complex relationships.

Limitations and Future Directions

Further investigation is needed to explore why self-activation decreases resistance, and to empirically test its mechanism. In addition to our suggestions that salient self-concept can make people more engaged in the story and more likely to imagine the self in the depicted scenario, there may be other explanations. In fact, self-concept has been construed from a multidimensional perspective (Burns, 1979; Sirgy, 1982) and various kinds of self-related concepts can be activated. One possibility is that self-activation activates individuals' core values and positive attributes about the self. This is consistent with the literature about the role of self-affirmation in reducing reactance. Schwinghammer and coauthors (2006) suggest that activating the positive aspects of self-conceptions, compared to neutral and negative, could result in less defensive processing of the threatening message. Since people in general form a positive view about themselves, it is likely that the more positive aspects of self were activated by the self-activation manipulation. If this is the case, our study provided some evidence that increasing the salience of one's overall self-concept by self-activation, not necessarily priming one's core beliefs or the positive side of the self, is enough to boost one's self-affirmation and help overcome resistance. It is also

valuable to further investigate how activating different aspects of self, such as the actual self versus the ought/ideal self (Evans & Petty, 2003), or the social self versus the private self (Brown & Gallagher, 1992), would influence audience members' narrative processing differently.

The narrative fear appeal in this study describes death as a consequence of binge drinking. This message was selected assuming that people are more likely to resist threatening messages. Further research could explore whether the effect of self-activation in decreasing resistance is unique to negatively framed messages and/or narrative persuasion. In the traditional persuasion literature, heightened self-consciousness is found to increase perceived freedom threat (Carver & Scheier, 1981). Given the discrepancy between our results and previous research findings, it is worth comparing the role of self-activation in narrative versus nonnarrative persuasion more directly. Other potential moderators of the effects of self-activation in health communication, such as message framing (promotion vs. prevention) and severity of the negative outcomes, also deserve further investigation.

Finally, we note that the findings of this study are based on a single anti-binge-drinking message. Caution should be taken when applying them to other contexts. However, since the key variables—self-activation and habitual drinking behaviors—are independent from features of the stimulus message, we are confident that the results could be replicated and that our findings are generalizable to other persuasive messages with different topics and contexts. Future studies are also encouraged to explore how self-activation and reduced resistance would influence other persuasion outcomes, such as attitude toward binge drinking, intention to avoid binge drinking, and actual behavioral changes.

Conclusion

A causal test of the effect of self-activation on resistance to fear appeals in an anti-binge-drinking narrative message found that self-activation reduces people's unrealistic judgments and negative evaluations about the persuasive story, particularly among heavier drinkers. Self-activation also decreases audience members' perceived freedom threat, which further helps people form more accurate risk perceptions about binge drinking.

Conflict of Interest

The authors have no conflicts of interest to report.

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