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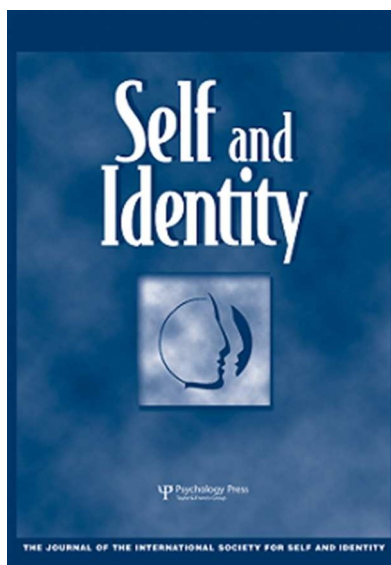
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**Self-Affirmation and an incongruent drinking norm:  
Alcohol Abuse Prevention Messages Targeting  
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Self-Affirmation and an incongruent drinking norm: Alcohol Abuse Prevention Messages  
Targeting Young People

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**Abstract**

Many health campaigns are designed to reduce dangerous binge drinking and challenge misperceptions of the prevailing drinking norm. For drinkers, this situation is problematic. Information about health risks and statements that only a few people binge drink (low descriptive norm) threaten their self-integrity, so to combat this self-threat and preserve their positive self-integrity, drinkers discredit the message as a coping strategy. Research suggests that this discrediting strategy could be countered with a self-affirmation procedure. In the present study, we attempted to demonstrate the beneficial effects of self-affirmation, and measure just how far it can protect self-integrity. Across three experiments, we found that self-affirmation does indeed reduce discrediting, but only providing there is no normative information in the health message. Individuals prefer the discrediting strategy to self-affirmation when they are told that few people binge drink among their age group. The theoretical implications for self-affirmation are discussed.

*Keywords:* self-affirmation, descriptive norm, deviance, discrediting

## Self-Affirmation and a Low Drinking Norm: Alcohol Abuse Prevention

### Messages Targeting Young People

Across Western countries, binge drinking is a widespread social trend among students and other young people<sup>1</sup>. In an attempt to change inappropriate behaviors and attitudes in relation to health, national campaigns related to alcohol intake have sought to warn individuals about the dangers of excessive drinking. However, simply informing the public about the dangers of certain health-related behaviors seems to have very little impact on cognitions and/or behaviors (Harris & Epton, 2009). Instead of considering the message content and changing their cognitions and/or behavior in line with recommendations, individuals may engage in a defensive process.

### Threatening Self-Integrity with a Health Message

The present study adopted the approach advocated by self-affirmation theory (Aronson, Cohen, & Nail, 1999; Sherman & Cohen, 2006; Steele, 1999). Because they threaten self-integrity, persuasive messages may ironically trigger a coping strategy. Informing individuals that their alcohol-related behaviors are bad habits and cause negative health outcomes can trigger a self-serving bias (Kunda, 1987; Liberman & Chaiken, 1992). People may discredit the message's conclusion to preserve their self-integrity. Individuals are deeply motivated to maintain an overall positive and coherent self-perception "as having adaptive and moral adequacy, as being competent, good, stable, integrated, capable of choice and control, and so forth" (Steele, 1999, p. 386). Telling them that their behaviors are risky may suggest that they are reckless with their health (Sherman & Cohen, 2002, 2006), which runs counter to their positive self-integrity. If they admit that they have engaged in inappropriate behaviors that are in contradiction with their desire for good health, this inconsistency creates a threat to their self-integrity. The message becomes threatening and highlights the unsuitable nature of their bad habits pertaining to alcohol consumption. Faced

## SELF-AFFIRMATION AND ALCOHOL

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3 with any sort of self-threat, people spontaneously seek to resolve the conflict (Major &  
4  
5 O'Brien, 2005). Therefore, to protect their self-integrity, they adopt a coping strategy that  
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7 consists in denying or discrediting the message. As a result, they cease to perceive the  
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9 discrepancy, insofar as they no longer have any reason to believe that their past behaviors  
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11 (i.e., alcohol-related habits) pose a threat to their health. In other words, the self-defense  
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13 mechanism enables them to protect their self-integrity, and they continue to perceive  
14  
15 themselves as coherent and adaptive.  
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17  
18         Research on biased information processing following a persuasive message has  
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20 tended to focus on the link between behaviors and the stated negative outcomes. From another  
21  
22 perspective, however, drinking behavior is deeply embedded in social relations and social  
23  
24 norms during adolescence and early adulthood. Young people mostly drink alcohol at parties  
25  
26 with their peers. One of the most predictive factors for drinking alcohol is social norm  
27  
28 (Neighbors, Lee, Lewis, Fossos, & Larimer, 2007; Piane & Safer, 2008). Young people's  
29  
30 drinking behavior reflects their obedience to perceived peer pressure. Health messages may  
31  
32 therefore call prevailing social norms into question. The binge drinking social norm can be  
33  
34 regarded as maladaptive. In other words, the social norm is harmful because it encourages  
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36 individuals to engage in hazardous acts. According to social identity theory (Tajfel & Turner,  
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38 1979, 1986), the self-concept is formed along a personal-social continuum. Belonging to a  
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40 group means espousing its social norms, which are included in the self-concept. A health  
41  
42 message may threaten self-integrity if it reveals the maladaptive aspect of the corresponding  
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44 social norm. As young people tend to drink alcohol to conform to a social norm, rather than to  
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46 satisfy from personal desire, their drinking behavior reflects compliance with a drinking  
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48 norm. Statistically, therefore, their drinking behavior should predict message acceptance  
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50 because the alcohol consumption measure is a confounding variable (see, MacKinnon, Krull,  
51  
52 & Lockwood, 2000, for a definition) with the subjective norm.  
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### Deviance Constitutes a Threat to Self-Integrity

This analysis of the low impact of health prevention messages has led many researchers (Borsari & Carey, 2008; Dieterich, Stanley, Swaim, & Beauvais, 2013; Moreira, Smith, & Foxcroft, 2010; Perkins, Linkenbach, Lewis, & Neighbors, 2010) to look for strategies for improving the impact of these messages and triggering change, in particular the use of descriptive norms (Cialdini, 2007). This strategy consists in telling the public what most people do in particular contexts. However, there may be a discrepancy between what a health campaign says and what individuals think. For example, the stated drinking norm may be lower than young people think it is. This misperception is rooted in a perceived norm of heavy drinking that encourages young people to binge drink (Corbin, Iwamoto, & Fromme, 2011; Neighbors et al., 2007; Page, Ihasz, Hantiu, Simonek, & Klarova, 2008; Piane & Safer, 2008). In other words, young people drink heavily because they generally overestimate the number of other young people who drink heavily at parties. Given this observation, it is tempting to provide an explicit descriptive norm that is lower than the perceived norm, as a means of changing inappropriate attitudes and behaviors. This intervention supposedly overcomes young people's misperceptions and lead to healthier behaviors. Although the provision of descriptive norms has become a popular technique for changing cognitions and behaviors (Cialdini, 2007; Cialdini et al., 2006; Cialdini, Reno, & Kallgren, 1990; Kallgren, Reno, & Cialdini, 2000; Reno, Cialdini, & Kallgren, 1993; Schultz, Nolan, Cialdini, Goldstein, & Griskevicius, 2007), some analyses indicate that the influence of descriptive norms in prevention messages is somewhat mixed (Blanton, Köblitz, & McCaul, 2008; Lewis & Neighbors, 2006; Wechsler et al., 2003). A descriptive norm has an effect on attitudes and behaviors when it is congruent with what people think of the social norm at issue (Cialdini, 2003). If, however, the stated descriptive norm does not match what people think they know about the social norm (subjective norm), which is often the situation in health messages, the

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descriptive norm has only a weak effect on cognitive and behavioral changes. Even so, the absence of change in the wake of information about a general descriptive norm does not mean that these general descriptive norms have no impact whatsoever on individuals.

In terms of self-affirmation theory (Sherman, 2013), information about a low descriptive norm may also be interpreted as a threat to self-integrity. Telling individuals about the percentage of people who are accustomed to drinking heavily enables them to compare their own behaviors with that descriptive norm. Trying to decrease the misperception of a massive binge drinking norm by contrasting it with a real- or bogus-descriptive norm (e.g., only a very small number of people are heavy drinkers) emphasizes the deviant nature of binge drinking (i.e., the discrepancy between the group norm and the individual's drinking behavior). People can, however, come to view themselves as deviants in relation to a descriptive norm set out in a health message. In other words, if they conclude that they belong to a minority (i.e., behaving discrepantly vis-à-vis the stated descriptive norm), they may feel they are in the extremely uncomfortable position of deviants (Christensen, Rothgerber, Wood, & Matz, 2004). Descriptive norms are influential because individuals seek to avoid being ostracized and becoming a black sheep (Marques & Yzerbyt, 1988). Deviant individuals threaten the group's cohesiveness and distinctiveness (Wellen & Neale, 2006). According to Abrams and colleagues, "[...] deviants are evaluated negatively because they undermine valued group norms, and not just because they are dissimilar from the group per se" (2002, p. 172).

One particular function of groups is to enable people to predict how the members of a given group will behave and think. The social environment is then perceived of as more controllable and therefore less uncertain (Hogg & Reid, 2006). Announcing a norm that is incongruent with what individuals hitherto thought about their group represents a sudden normative change. This situation "can produce an acute sense of identity threat and self-



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3 conceptual uncertainty, impermanence, and instability” (Hogg & Reid, 2006, p. 22). They  
4 realize that they are unable to predict and understand the other in-group members’ behaviors.  
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6 Being confronted with a health message that contains an incongruent descriptive norm  
7  
8 (compared with the perceived norm) therefore emphasizes the deviance of their behavior in  
9  
10 relation to the majority and their mismatch with their peers. According to Cialdini and Trost  
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12 (1998), people are motivated to respect descriptive norms because they “maximize the  
13  
14 effectiveness of their social behavior” (p. 155) and allow them to attain goals. In other words,  
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16 announcing an incongruent descriptive norm signals to people that their social behavior is  
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18 ineffectual and they are out of line with their group. When they are no longer capable of  
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20 predicting the social norm, people lose control of their social environment (Cialdini & Trost,  
21  
22 1998). Ultimately, the announcement of an unexpectedly low descriptive norm forces people  
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24 to compare their behavior with that of others, and is therefore a threat to their self-integrity.  
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30 In addition to threatening self-integrity, the announcement of a low drinking norm  
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32 can activate people’s identity as drinkers. According to self-categorization theory (Turner,  
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34 Hogg, Oakes, Reicher, & Wetherell, 1987), identity has several different facets. Furthermore,  
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36 individuals conform to different group prototypes according to the facet of their identity that  
37  
38 is made salient by the context. Normative information about alcohol consumption therefore  
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40 forces people to compare their habitual drinking behaviors with the stated descriptive norm.  
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42 This information is so inextricably bound up with group (Hogg & Reid, 2006) that it can  
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44 activate the drinker identity, causing people to interpret the health message as drinkers.  
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46 Obviously, a message emphasizing the harmful effects of binge drinking will threaten this  
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48 drinker identity, and people may once again seek to protect their self-integrity by discrediting  
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50 the health message (Kunda, 1987; Liberman & Chaiken, 1992), finding fault with the  
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52 arguments it puts forward. According to this analysis, the extent to which individuals discredit  
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## SELF-AFFIRMATION AND ALCOHOL

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3 the health message in order to protect their drinker identity will depend on their habitual  
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5 drinking behaviors.

**Self-Affirmation**

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10 When faced with threats to the self (e.g., health messages for people with unhealthy  
11 behaviors), individuals have to resort to some sort of coping strategy. Discrediting the  
12 message is not the only way of protecting one's self-integrity. Another self-defense  
13 mechanism consists in affirming an important feature of one's self-concept (Creswell et al.,  
14 2007; see McQueen & Klein, 2006, for a review; Reed & Aspinwall, 1998; Sherman &  
15 Cohen, 2002, 2006; Sherman & Hartson, 2011; Sherman, Nelson, & Steele, 2000).  
16  
17 Researchers have used several methods to encourage participants to affirm features of their  
18 self-concepts. In the present study, we focused on two procedures.  
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27 The first procedure is *attribute affirmation*, where the goal is to make a personal  
28 attribute more salient. People are given bogus positive feedback in the form of a label such as  
29 *you are creative* (Aronson, Blanton, & Cooper, 1995; Blanton, Cooper, Slkurnik, & Aronson,  
30 1997; Spencer, Fein, & Lomore, 2001). This label is made credible by first getting the  
31 participants to fill out a personality questionnaire. This feedback is an efficient way of  
32 shielding the self-concept from a threat. For example, in Aronson and colleagues' (1995)  
33 study, participants experiencing cognitive dissonance did not need to change their attitude  
34 (reduction mode) to preserve a feeling of consistency. The second procedure is *value*  
35 *affirmation* (Sherman et al., 2000). This has the identical goal of making a central and  
36 important value salient, but does so by getting participants to rank ten or eleven values (e.g.,  
37 creativity, relations with friends/family, etc.), then explain and give examples of why the top  
38 value is important in daily life.  
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54 When individuals have been self-affirmed by one of these methods prior to exposure  
55 to a self-threat, they no longer need to use a spontaneous coping strategy (e.g., denying a  
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3 message's findings) to protect their self-integrity. Instead, they end up accepting and  
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5 acknowledging arguments as being true without trivializing them (Correll, Spencer, & Zanna,  
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7 2004; Jessop, Simmonds, & Sparks, 2009). Many studies have shown that people accept  
8  
9 message conclusions if their self-concept has been affirmed (Armitage, Harris, & Arden,  
10  
11 2011; Armitage, Harris, Hepton, & Napper, 2008; Epton & Harris, 2008; Griffin & Harris,  
12  
13 2011; Harris & Epton, 2009; Harris & Napper, 2005; Harris, 2011; Klein et al., 2010;  
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15 Sherman et al., 2000; van Koningsbruggen, Das, & Roskos-Ewoldsen, 2009).

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18 The different facets of identity include roles, groups, and elements that can be  
19  
20 affirmed in the attribute- and value-affirmation procedures. The self-affirmation process  
21  
22 therefore involves activating a positive and important element of identity. According to  
23  
24 Sherman (2013), this affirmation has three major implications for managing a self-threat: 1)  
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26 self-affirmation provides self-resources to people; 2) with these affirmational resources at  
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28 their disposal, they are able to perceive the threatening information from a broader  
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30 perspective; and 3) the self-threat relationship is uncoupled. People regard the threat as  
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32 irrelevant to their self-evaluation.  
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### 36 Present Study

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38 The present study was in line with research on the relationship between behaviors  
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40 and health message acceptance (Kunda, 1987; Liberman & Chaiken, 1992). More specifically,  
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42 we sought to ascertain whether self-affirmation constitutes a means of disrupting the  
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44 behavior-acceptance relationship. The protection afforded by self-affirmation against threats  
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46 to self-integrity in the field of health prevention has already been well documented (Cohen &  
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48 Sherman, 2014; Harris & Epton, 2009; Harris, 2011; Sherman & Cohen, 2006; Sherman et al.,  
49  
50 2000), including for drinking behavior (Armitage et al., 2011; Ferrer, Shmueli, Bergman,  
51  
52 Harris, & Klein, 2011; Harris & Napper, 2005; Klein, Harris, Ferrer, & Zajac, 2011; Klein &  
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54 Harris, 2009; Scott, Brown, Phair, Westland, & Schüz, 2013). Research has shown that self-  
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3 affirmation can uncouple the link between behavior and acceptance (Cohen & Sherman, 2014;  
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5 Harris & Epton, 2009). Moreover, self-affirmation is acknowledged to be a viable strategy for  
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7 shielding self-integrity from self- and group threats to (for a review, see Sherman & Cohen,  
8  
9 2006; Sherman & Hartson, 2011).

10  
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12 Research so far has focused on the effects of self-affirmation when people are  
13  
14 confronted with a health-related message. Our review of normative information in health  
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16 messages revealed that people actually need to manage two threats to their self-integrity: one  
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18 arising from the discrepancy between their desire for good health and their drinking habits  
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20 (self-threat); the other arising from their failure to respect the ingroup descriptive norm  
21  
22 (group-threat). We therefore sought to improve current understanding of the effects of self-  
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24 affirmation on the acceptance of health messages as a function of drinking behavior in the  
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26 presence of a double threat to self-integrity: a heightened group threat and the undermining of  
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28 self-integrity by drinking behaviors.  
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33 By generating two threats to self-integrity, the present study was able to test the  
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35 limitations of self-affirmation as a buffer to threats. Most studies have attempted to list the  
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37 conditions needed to implement a self-affirmation procedure in order to protect self-integrity,  
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39 and some have identified possible limitations. First, individuals have to be unaware of its  
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41 beneficial effects (Sherman et al., 2009). Second, the content of the affirmation must be  
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43 irrelevant to the threat (Blanton et al., 1997; Sivanathan, Molden, Galinsky, & Ku, 2008).  
44  
45 Third, a recent article (Shapiro, Williams, & Hambarchyan, 2013) showed that the efficacy of  
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47 self-affirmation in reducing the negative impact of stereotype threat on performance depends  
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49 on the target of that threat (self-as-target vs. group-as-target). Self-affirmation was found not  
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51 to be an effective buffer in the group-threat condition. In some group threats, there may also  
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53 be a risk of exclusion owing to the deviance of behaviors. Prewitt-Freilino and Bosson (2008)  
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55 showed that self-affirmation failed to restore a sense of self-integrity because the threat was  
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3 accompanied by a risk of interpersonal punishments following counternormative behavior.

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5 Whether or not self-integrity is restored, the consequence of deviance remains. Self-  
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7 affirmation cannot, therefore, cope with both outcomes of the threat (self-integrity plus  
8  
9 exclusion). If the self-affirmation procedure is not entirely appropriate for buffering the threat,  
10  
11 individuals have to cope with that threat some other way.  
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13  
14 Prewitt-Freilino and Bosson (2008) and Shapiro and her colleagues (2013) suggested  
15  
16 testing the efficacy of self-affirmation with different types of threat (self- vs. group-threat).  
17  
18 We therefore looked at just how far self-affirmation can preserve positive self-integrity and  
19  
20 uncouple the behavior-acceptance relationship. Can self-affirmation shield self-integrity from  
21  
22 any type of threat? Classically, the more alcohol young people are accustomed to drinking,  
23  
24 the more they resort to discrediting the message to protect their self-concept when confronted  
25  
26 with threatening information (Harris & Epton, 2009). However, if they are given an  
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28 opportunity to self-affirm (whatever their habitual alcohol intake), they accept the conclusion  
29  
30 of the health message (i.e., no discrediting) because their self-integrity is protected (Harris &  
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32 Napper, 2005). In line with Prewitt-Freilino and Bosson (2008), we can assume that if identity  
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34 is threatened by emphasizing the deviance of binge drinking, then self-affirmation will not  
35  
36 protect self-integrity. Individuals will keep on discrediting the message as a coping strategy,  
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38 even if they were previously self-affirmed. Thus, we would expect the level of message  
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40 acceptance to depend on people's alcohol-related habits, with heavy drinkers being less  
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42 inclined to accept the health message than people who drink very little.  
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48 There are two reasons why self-affirmation may not be a viable defensive strategy  
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50 when people are confronted with information that threatens their self-integrity, plus a norm  
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52 that emphasizes their deviance:

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54 1) The self-concept is made up of different elements including personality traits,  
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56 attributes, roles and group membership. Self-affirmation acts as a buffer against self-threats  
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## SELF-AFFIRMATION AND ALCOHOL

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3 because a positive and important element of this self-concept (e.g., attribute or value) is  
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5 activated. The announcement of a low drinking norm may activate another element of the  
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7 self-concept (here, drinker group membership). The drinker identity is thus activated and  
8  
9 associated with a stigmatized minority. The descriptive norm highlights the negative and  
10  
11 maladaptive aspect of belonging to the drinker group. The self-affirmation induced by a  
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13 procedure prior to exposure to the threat may thus be associated with the drinker identity. If  
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15 both identity elements (positive and negative) are made salient, they may well come into  
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17 conflict with each other, interfering with the affirmation process. The activation of two  
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19 identity elements may therefore reduce access to the general self-concept, depriving  
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21 individuals of self-affirmational resources;  
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25 2) Emphasizing the deviance of a behavior brings with it a risk of stigmatization and  
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27 rejection by others. The individuals concerned have no control over the others. The associated  
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29 risk cannot be managed by self-affirmation (Prewitt-Freilino & Bosson, 2008), and  
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31 discrediting the message seems a more effective coping strategy. If the message is perceived  
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33 of as unbelievable or unreliable, then all the information it contains must be worthless. This is  
34  
35 a way of decreasing the perceived risk of rejection by others.  
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39 In summary, we hypothesized that reading a threatening health-related message that  
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41 does not contain any normative information induces a coping strategy in those individuals  
42  
43 concerned by the message's content. The more alcohol people drink, the more they will deny  
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45 the message's conclusions (Hypothesis 1). If individuals are given an opportunity to self-  
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47 affirm prior to being exposed to the prevention message, their self-integrity will be protected,  
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49 thus rendering the defensive bias pointless. Self-affirmation therefore diminishes or uncouples  
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51 the link between alcoholic behavior and message acceptance (Hypothesis 2). If the message  
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53 includes information pointing to a low descriptive drinking norm, this generates a group-  
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55 threat among the heaviest drinkers and activates their drinker identity. As we argued above, in  
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3 this situation they will use discrediting as a coping strategy and will not draw on their self-  
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5 affirmational resources (Hypothesis 3).  
6

### 7 8 **Overview**

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10 We conducted three experiments to test the effect of self-affirmation on the  
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12 relationship between habitual drinking behaviors and general acceptance of health messages,  
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14 in the presence or absence of normative information concerning the small number of binge  
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16 drinkers among adolescents and students. We tested our hypotheses using attribute  
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18 affirmation (Experiment 1) and value affirmation (Experiments 2 and 3) as self-affirmation  
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20 procedures. Given that the content of self-affirmation must be irrelevant to the self-threat so  
21  
22 that acceptance is uncoupled from the alcohol-related behavior, we expected to observe an  
23  
24 exacerbation of discrediting (the negative relationship between the alcohol consumption and  
25  
26 acceptance) when individuals affirmed an important group value (group affirmation) and  
27  
28 learned about a low drinking norm (Experiment 2). Finally, we sought to assess the self-  
29  
30 affirmation effect whether the threat to self-integrity stemmed either from the health message  
31  
32 or from deviance. To this end, we measured the subjective norm and drinking behaviors as  
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34 predictors of health message acceptance (Experiment 3).  
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### 38 **Pilot study**

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40 The pilot study had two goals. First, we needed to check whether the different  
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42 measures of alcohol consumption we used were related to binge drinking. Second, we needed  
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44 to show that alcohol consumption is related to the perception of a social norm. We asked 202  
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46 students aged 18-25 years (120 women,  $M_{age} = 21.27$ ,  $SD_{age} = 1.91$ ) from Aix-en-Provence  
47  
48 (France) about the subjective norm (three items, e.g., “If I binge drink in a single session  
49  
50 within the next two weeks most people who are important to me will (1) approve or (7)  
51  
52 disapprove; Cronbach’s  $\alpha = .86$ ) and the group norm (four items, e.g., “How much would  
53  
54 your friends and peers at university agree that binge drinking in a single session within the  
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3 next two weeks is a good thing to do?"; Cronbach's  $\alpha = .90$ ). Both these scales were adapted  
4  
5 from Johnston and White (2003). We then measured the descriptive norm by asking how  
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7 many drinks a typical student consumes when he or she "goes to a bar", "has friends over to  
8  
9 his or her flat for drinks", or "goes to a party" (Rimal & Real, 2005). Finally, participants  
10  
11 completed six items on their alcohol consumption related to states of drunkenness ([1] "How  
12  
13 many times were you drunk in the previous month?" and [2] "How many times are you drunk  
14  
15 on average in a normal month?"), drinking habits ([3] "How much alcohol did you drink in  
16  
17 the previous seven days?" and [4] "How much do you drink on average in a normal week  
18  
19 [number of glasses/drinks]?") and intake at parties ([5] "Usually, during a party, how many  
20  
21 alcoholic drinks do you consume on average?" and [6] "During a party with friends, how  
22  
23 much alcohol do you drink?" [number of glasses/drinks]). A principal component analysis  
24  
25 (PCA) on alcohol-related items yielded only one factor (eigenvalue  $> 1$ ), which explained  
26  
27 64.90% of variance, after it had been checked with the Kaiser–Meyer–Olkin (0.76) measure  
28  
29 of sampling adequacy, and Bartlett's test of sphericity,  $\chi^2(15) = 822.98, p < .001$ , the two  
30  
31 conditions of application. All items loaded onto the factor ( $> .70$ ). From this PCA, we  
32  
33 extracted a factor score for each participant. As already observed in a French sample  
34  
35 (Richard, Spilka, & Beck, 2013), women reported drinking less than men,  $t(194) = -3.38, p =$   
36  
37  $.001$ . Moreover, alcohol intake was correlated with the subjective norm ( $r = .44, p < .001$ ),  
38  
39 group norm ( $r = .39, p < .001$ ) and descriptive norm ( $r = .50, p < .001$ ). These results  
40  
41 indicated that, for the purposes of the subsequent experiments, the more alcohol young people  
42  
43 drank, the more the announcement of a low drinking norm would create a perception of  
44  
45 discrepancy. The discrepancy between what they thought was the social norm and the social  
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47 norm announced by the health message would be especially great because they were  
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49 accustomed to drinking at parties and in their daily lives.  
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3 Participants were also requested with a single item whether they had already  
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5 experienced binge drinking (1 = *Never*, 2 = *Once*, 3 = *Several times* and 4 = *Every week*).  
6  
7 Binge drinking was defined in the item as being an extreme state of drunkenness (“stoned”)  
8  
9 reached in a very short interval. This item was significantly correlated (Spearman’s  $\rho$ ) with  
10  
11 subjective norm, group norm and descriptive norm (respectively,  $\rho = .39$ ,  $\rho = .26$  and  $\rho = .21$ ,  
12  
13 all  $ps \leq .003$ ). Importantly for the measures of alcohol intake in the subsequent three  
14  
15 experiments, each alcohol-related item was correlated with the others. This means that each  
16  
17 measure of alcohol intake predicted binge drinking among a sample of students and other  
18  
19 young people (17-25 years old). Moreover, there was a correlation between the index of  
20  
21 alcohol intake and the self-reported item on binge drinking,  $\rho = .37$ ,  $p < .001$ . In other words,  
22  
23 the more alcohol they reported on any of these items, the more likely they were to identify  
24  
25 themselves as binge drinkers. This is very important, as it meant that the indices we computed  
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27 with these items would be related to binge drinking. The higher the alcohol intake index, the  
28  
29 more threatened people would be by a health message mentioning the hazards of binge  
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31 drinking. The higher the alcohol intake index, the  
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33 more threatened people would be by a health message mentioning the hazards of binge  
34  
35 drinking.

### 36 37 Experiment 1

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39 We tested the relationship between drinking behavior and acceptance of the health  
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41 message as a function of normative information and self-affirmation by an attribute. An  
42  
43 attribute can affirm the self-concept and thus restore self-integrity (McQueen & Klein, 2006).  
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45 However, it must be unrelated to the domain of the self-threat (Blanton et al., 1997; McCre  
46  
47 & Hirt, 2011). For example, when Blanton and colleagues (1997) gave participants an  
48  
49 opportunity to affirm *compassion*, even though they had shown that they lacked compassion  
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51 in written statements about disabled people, it increased their cognitive dissonance, unlike the  
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53 affirmation of *creativity* (attribute unrelated to the self-threat). We chose to use the *creativity*  
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label to self-affirm participants so that there was no relationship between self-threat and attribute affirmation.

## Method

**Population and experimental design.** A total of 228 students (156 women), aged 15-25 years ( $M_{age} = 19.99$  years,  $SD_{age} = 1.93$ ), from various French universities volunteered to take part in an online psychology study. They were invited by email to click on a web link to participate. They were randomly assigned to one of four experimental conditions in a 2 (*creativity* labeling vs. no labeling)  $\times$  2 (low drinking norm vs. no normative information) between-participants factorial design.

**Step 1: Attribute affirmation.** All participants began by filling out a 44-item personality test in which they indicated the extent to which different traits corresponded to the way they perceived themselves (e.g., interested in art, sociable, shy). Upon completion of this questionnaire, participants were self-affirmed by receiving bogus feedback on their creativity (Aronson et al., 1995; Sivanathan et al., 2008). Participants' test results read "Your personality is characterized by strong creativity, which means you are able to demonstrate originality and imagination". In the no labeling condition (no self-affirmation), participants went directly to the next step without receiving any feedback.

**Step 2: Threatening information and social norm.** Next, participants read a text about the risks of brain damage after binge drinking (see Appendix 1). To be sure that everyone understood the article, it was preceded by the following definition of the term *binge drinking*: "quickly drinking large amounts of alcohol within a short space of time to quickly reach an intoxicated state". Participants in the low-drinking norm condition were told that "In Western countries, it is a practice that 17% of adolescents and students (young people aged between 15 and 24 years old) have experienced at least once in their lives". In the no normative information condition, the latter sentence was not provided. They then read the

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3 article on binge drinking at their own pace. The article reported the findings of two scientific  
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5 studies indicating the harmful effects of binge drinking on the brain.  
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7       **Step 3: Form completion.** Participants next completed two message acceptance  
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9 items adapted from Sherman, Nelson, and Steele (2000). They rated the question “To what  
10  
11 extent do you think that binge drinking causes neurological damage to the brain?” on a scale  
12  
13 ranging from 1 (*Strongly disagree*) to 9 (*Strongly agree*), and the question “To what extent do  
14  
15 you think it is important that students stop binge drinking at parties with their friends?” on a  
16  
17 scale ranging from 1 (*Not at all important*) to 9 (*Extremely important*),  $r = .35$ ,  $p < .001$ . They  
18  
19 were then asked to report their alcohol consumption. As the Alcohol Use Questionnaire  
20  
21 widely used in studies of binge drinking (e.g., Townshend & Duka, 2002), includes measures  
22  
23 of both regular intake and drunkenness, we selected three items from the pilot study (“How  
24  
25 many times were you drunk in the previous month?”, “How much alcohol did you drink in the  
26  
27 previous seven days [number of glasses/drinks]?” and “During a normal week, how much  
28  
29 alcohol do you drink on average [number of glasses/drinks]?”; Cronbach’s  $\alpha = .76$ ). These  
30  
31 three items were centered and reduced ( $z$  scores) to create a scale of alcohol intake. Finally,  
32  
33 participants were directly requested to report whether they had already experienced binge  
34  
35 drinking (see item in the pilot test).  
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## 40 **Results**

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42       **Manipulation checks.** Alcohol consumption was always measured after the message  
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44 acceptance variable, to avoid giving salience to drinking habits. We ran a 2 (self-affirmed vs.  
45  
46 no affirmation)  $\times$  2 (normative information vs. no normative information) analysis of variance  
47  
48 (ANOVA) to determine whether the experimental conditions had any effect on the self-  
49  
50 reported alcohol consumption measure. There was no main effect of attribute affirmation or  
51  
52 normative information, and no interaction effect, on self-reported alcohol consumption (all  $F$ s  
53  
54  $< 1$ ). Scores on the self-report scale were therefore not influenced by the experimental  
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conditions, and we used them as a predictor in the ensuing analyses. Moreover, the index of alcohol consumption was correlated with self-reported binge drinking,  $\rho = .41, p < .001$ .

**Message acceptance.** We used linear regressions (Aiken & West, 1991) to assess the main and interaction effects of normative information, attribute affirmation and drinking habits on health message acceptance. All the independent variables were centered (attribute affirmation: -1 = no feedback and 1 = creative; normative information: -1 = no normative information and 1 = low drinking norm). All the factors and interaction terms were entered step by step in a hierarchical multiple regression. The covariates (age and sex) were entered in the first step. The main effects of alcohol consumption, normative information and attribute affirmation were tested in the second step. The third and fourth steps tested the two-way and three-way interactions, respectively.

First, whatever the experimental condition, results revealed an effect of alcohol consumption on health message acceptance. The more alcohol participants were accustomed to drinking, the less they accepted the message's conclusions,  $\beta = -.36, t(222) = -5.82, p < .001$  (Hypothesis 1).

Analysis also revealed an effect of the three-way interaction between the alcohol consumption, self-affirmation and normative information variables on message acceptance,  $\beta = -.16, t(218) = -1.98, p = .049$ . In order to break this three-way interaction down, we looked for the interaction effects between alcohol consumption and attribute affirmation on acceptance in the no normative information and low binge-drinking norm conditions (see Fig. 1). In other words, we looked at whether the slopes differed significantly between the no feedback and creative conditions.

In the no normative information condition, a linear regression with interaction effects showed that alcohol consumption differently predicted message acceptance according to whether or not participants had been labeled as creative (slightly significant interaction effect

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3 between alcohol consumption and attribute affirmation),  $\beta = -.19$ ,  $t(105) = 1.89$ ,  $p = .059$  (see  
4  
5 Fig.1, top): participants discredited the health message less in the attribute-affirmation  
6  
7 condition (i.e., *creativity* labeling),  $\beta = -.28$ ,  $t(50) = -2.08$ ,  $p = .043$ , than in the no attribute-  
8  
9 affirmation condition,  $\beta = -.43$ ,  $t(55) = -3.51$ ,  $p = .001$  (Hypothesis 2). By contrast, in the low  
10  
11 drinking norm (17%) condition, there was no significant difference in health message  
12  
13 acceptance between participants in the attribute-affirmation and no self-affirmation conditions  
14  
15 (no interaction effect),  $\beta = -.14$ ,  $t(115) = -1.23$ ,  $p = .222$  (see Fig.1, bottom). Participants  
16  
17 exhibited identical acceptance of the effects of alcohol on the brain in the attribute-  
18  
19 affirmation,  $\beta = -.50$ ,  $t(63) = -4.58$ ,  $p < .001$ , and no self-affirmation,  $\beta = -.39$ ,  $t(52) = -3.01$ ,  $p$   
20  
21  $< .001$ , conditions (Hypothesis 3).  
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## 25 Discussion

26  
27 The results of this first experiment supported our assumptions. The affirmation of an  
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29 attribute unrelated to self only reduced the defensive bias (i.e., discrediting) when participants  
30  
31 did not have explicit knowledge of the drinking norm. These initial results replicate those  
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33 obtained by affirming kindness in the healthcare field (Reed & Aspinwall, 1998), and further  
34  
35 support the notion that labeling (here, *creativity*) is a viable way of affirming the self-concept  
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37 (Aronson et al., 1995; Blanton et al., 1997; Sivanathan et al., 2008). However, if the low  
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39 drinking norm was given salience and did not confirm drinkers' past behaviors, attribute  
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41 affirmation had no effect on the relationship between health message acceptance and alcohol  
42  
43 consumption. Participants continued to discredit the message about the effects of binge  
44  
45 drinking on the brain. This suggests that the choice between self-affirmation strategy and  
46  
47 discrediting as a coping strategy depends on the social descriptive norm. In the presence of  
48  
49 the latter, individuals prefer to defend their self-integrity through discrediting, as this coping  
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51 strategy is more efficient.  
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## Experiment 2

This second experiment had a twofold aim. First, according to Sherman and Cohen (2006), self-affirmation is only effective if the attribute or value is important to the individual concerned. In our case, we had doubts about the importance of creativity, and as we did not measure it, we have no way of knowing whether it varied across participants. For this reason, we decided to repeat our first experiment, but with a modified self-affirmation procedure. In Experiment 2, we opted for the value-affirmation procedure (Sherman et al., 2000), which controls the importance of the value used to self-affirm. Instead of imposing a self-attribute on participants, they were asked to select the most important value from different suggested alternatives, and then explain why it was important to them.

Our second aim was to test the hypothesis that highlighting individuals' deviant behavior through the announcement of a low drinking norm (i.e., only 17% young people have experienced binge drinking) can arouse group-concerns. For this reason, alongside the value-affirmation procedure, we used a group-affirmation procedure in this second experiment (Glasford, Dovidio, & Pratto, 2009; Gunn & Wilson, 2011; Sherman, Kinias, Major, Kim, & Prenovost, 2007). This method makes it possible to affirm the collective self (i.e., group-related self), as opposed to the personal self. To demonstrate that providing a low descriptive binge-drinking norm arouses group concerns, we exploited the limitations of self-affirmation. Associating a relevant attribute with the threat increases that threat instead of diminishing it (Blanton et al., 1997). Assuming that a low descriptive norm condition induces group concerns, affirming important values related to the individual's group would be relevant to that threat. This would further increase concerns, and discrediting would therefore be preferred to self-affirmation. In Aronson and colleagues' study (1995), the relevant attribute not only did not decrease the dissonance state, but actually exacerbated it. Thus,

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3 group affirmation might intensify discrediting as a coping strategy in the low descriptive norm  
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5 condition.

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7 In spite of recurrent results showing that group affirmation shields positive self-  
8 integrity from threats, we hypothesized that group affirmation does not reduce discrediting.  
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10 Affirming an important group value is a way of priming aspects of the public self. It also  
11  
12 primes social norms (Brewer & Gardner, 1996), which people tend to enforce. Given that  
13  
14 young people believe that there is a massive binge-drinking norm, we reasoned that the group-  
15  
16 affirmation procedure would activate this prevailing norm, and the latter would be used to  
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18 assess the health message. Participants might therefore respond as conformist binge drinkers  
19  
20 and deny the message in order to protect their binge drinker identity.  
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## 24 25 **Method**

26  
27 **Population.** A total of 214 students (188 women), aged 17-25 years ( $M_{age} = 19.42$   
28 years,  $SD_{age} = 1.39$ ) from various French universities received an email invitation. They freely  
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30 agreed to take part in this experiment without any monetary or credit compensation. They  
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32 were randomly assigned to one of six experimental conditions in a 2 (no normative  
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34 information vs. low descriptive binge-drinking norm)  $\times$  3 (no self-affirmation vs. value  
35  
36 affirmation vs. group affirmation) between-participants factorial design.  
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41 **Procedure.** First, participants completed the value-affirmation procedure. They  
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43 listed ten values (i.e., freedom, ambition, tolerance, power, independence, equality, politeness,  
44  
45 creativity, justice, autonomy) in order of importance, either according to their own  
46  
47 preferences (self-affirmed) or those of their friends (group-affirmed). In the self-affirmed  
48  
49 condition, they explained why the first value was important to them by giving an example  
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51 from their everyday life. Contrary to the normal no self-affirmation condition, we chose to ask  
52  
53 participants to explain why the value listed bottom was not important in their everyday lives,  
54  
55 and to give an example (Sherman et al., 2000, Exp. 1). In most experiments using value  
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3 affirmation, in the control condition (i.e., no self-affirmation) participants are informed that  
4 the value ranked last could be important for another student belonging to the same university  
5 (e.g., Sherman et al., 2000, Exp. 2). However, given our hypothesis about group membership,  
6 we preferred to avoid any mention of another person, as this might have made a group salient.  
7  
8 In the group-affirmation condition, participants also ranked the values in order of importance,  
9 and justified their choices in terms of their friends' lives. Then all the participants read the  
10 article we had presented in Experiment 1 about the effects of binge drinking. As in  
11 Experiment 1, they either learned that just 17% of young people had engaged in binge  
12 drinking at least once (i.e., information about a low descriptive norm) or else received no  
13 normative information at all. As in Experiment 1, they then rated items on message  
14 acceptance ( $r = .35, p < .001$ ) and alcohol consumption (Cronbach's  $\alpha = .85$ ), and reported  
15 whether they had already experienced binge drinking.  
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### 30 Results

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32 **Manipulation checks.** We ran an ANOVA on alcohol intake to find out whether this  
33 variable was influenced by the experimental conditions. The ANOVA did not reveal main  
34 effects of either the self-affirmation variable,  $F(2, 208) = 1.01, p = .37$ , or the normative  
35 information variable,  $F(1, 208) = .15, p = .70$ . Nor was there any interaction effect,  $F(2, 208)$   
36  $= .59, p = .56$ . Alcohol consumption was therefore treated as a predictor in subsequent  
37 analyses. Moreover, alcohol consumption was correlated with the self-reported item on binge  
38 drinking,  $\rho = .41, p < .001$ .  
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48 **Message acceptance.** We submitted the data to a linear regression with interaction  
49 effects. Self-affirmation was dummy coded into two variables: The first dummy variable (d1:  
50 0 = no self-affirmation, 1 = self-affirmation and 0 = group-affirmation) and the second  
51 dummy variable (d2: 0 = no self-affirmation, 0 = self-affirmation and 1 = group-affirmation).  
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The alcohol consumption and normative information variables (-1 = no normative information



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3 and 1 = low drinking norm) were centered (see, Aiken & West, 1991, for the method). We  
4  
5 entered both covariates (age, sex) in the hierarchical regression in the first step, and analyzed  
6  
7 two main effects (alcohol consumption and normative information) in the second step. The  
8  
9 two dummy-coded variables of self-affirmation (d1 and d2) were entered in Step 3. Step 4  
10  
11 tested the two-way interaction terms between affirmation and normative information (d1 ×  
12  
13 normative and d2 × normative). The other two-way interactions between alcohol consumption  
14  
15 and affirmation (d1 × consumption and d2 × consumption) and between alcohol consumption  
16  
17 and normative information were tested in Steps 5 and 6, respectively. Finally, the three-way  
18  
19 interaction was entered in Step 7 (d1 × Consumption × Normative feedback and d2 ×  
20  
21 Consumption × Normative feedback).  
22  
23

24  
25 First of all, there was a significant effect of alcohol consumption on message  
26  
27 acceptance. Overall, the more alcohol participants were used to drinking, the less they  
28  
29 accepted the message's conclusions,  $\beta = -.43$ ,  $t(209) = -6.63$ ,  $p < .001$  (Hypothesis 1). Being  
30  
31 told the health risks of inappropriate behavior prompted participants to deny the message's  
32  
33 conclusions. We observed a significant three-way interaction effect between alcohol  
34  
35 consumption, social norm and self-affirmation,  $\Delta R^2 = .032$ ,  $\Delta F(2, 200) = 4.57$ ,  $p = .011$ . To  
36  
37 better understand this interaction, we calculated the slopes in each experimental condition.  
38  
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40  
41 ***No self-affirmation condition.*** Without self-affirmation, the experiment replicated  
42  
43 the defensive bias in the face of a threatening message, as the more alcohol participants were  
44  
45 accustomed to drinking, the more they denied the message's conclusion, regardless of the  
46  
47 normative information (no normative information condition:  $\beta = -.41$ ,  $t(202) = -3.26$ ,  $p = .001$   
48  
49 and low drinking norm condition:  $\beta = -.52$ ,  $t(202) = -3.87$ ,  $p < .001$ ). Moreover, there was no  
50  
51 statistical difference between these two normative conditions (no interaction effect),  $\beta = -.06$ ,  
52  
53  $t(202) = -.61$ ,  $p = .54$ . In other words, without self-affirmation, participants used discrediting  
54  
55 in similar ways in both the no normative information and low drinking-norm conditions.  
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3        **Self-affirmation condition.** In the no normative information condition, the defensive  
4 bias was countered by self-affirmation,  $\beta = -.06$ ,  $t(202) = .31$ ,  $p = .75$  (see Fig.2, bottom). In  
5 other words, self-affirmation uncoupled the relationship between alcohol consumption and  
6 message acceptance. In the low drinking (17%) norm condition, however, the defensive bias  
7 persisted after value-affirmation,  $\beta = -.28$ ,  $t(202) = -2.56$ ,  $p = .011$ , and did not differ from  
8 discrediting in the no self-affirmation and low descriptive norm conditions,  $\beta = -.16$ ,  $t(202) =$   
9  $-1.41$ ,  $p = .161$  (see Fig.2, top).

10  
11        **Group affirmation condition.** In the no normative information condition, group  
12 affirmation did not affect the defensive bias, such that the more alcohol participants were  
13 accustomed to drinking, the less they accepted the message's conclusions,  $\beta = -.55$ ,  $t(202) = -$   
14  $3.60$ ,  $p < .001$ . Furthermore, the group affirmation condition did not differ from the no self-  
15 affirmation condition,  $\beta = .091$ ,  $t(202) = .70$ ,  $p = .48$ . In the low (17%) drinking norm  
16 condition, by contrast, group affirmation significantly increased the defensive bias,  $\beta = -1.96$ ,  
17  $t(202) = -5.11$ ,  $p < .001$ , compared with no self-affirmation,  $\beta = .93$ ,  $t(202) = 3.54$ ,  $p < .001$ ,  
18 and value affirmation,  $\beta = 1.06$ ,  $t(202) = 4.22$ ,  $p < .001$ .

## 36 Discussion

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38        Results tended to confirm the findings of the first experiment, by showing that self-  
39 affirmation reduces the threat to self-integrity when people are not told about the drinking  
40 norm (Sherman et al., 2000). Again, we observed that self-affirmation does not necessarily  
41 replace the spontaneous coping strategy of discrediting. As hypothesized, normative  
42 information diminished the impact of self-affirmation. Results also confirmed our prediction  
43 that group affirmation (here, friends) would increase the defensive bias in the low descriptive  
44 norm condition. This means that people are probably focused on group concerns. Affirming a  
45 group value heightened the discrepancy between the participants' drinking consumption and  
46 the low norm, and thus prompted them to discredit the message more. Similarly, group  
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3 affirmation in the no normative information condition probably primed group-related beliefs  
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5 (here, overestimation of binge drinking). Young people need to be convinced that drinking is  
6  
7 positively perceived by their peers. Consequently, discrediting serves to protect their group-  
8  
9 related self.  
10

11  
12 The difference between the effects of value- and group-affirmation has several  
13  
14 implications for our understanding of the self-affirmation process. Up to now, the explanation  
15  
16 for these effects has been that when an important element of the self-concept (e.g., a value,  
17  
18 acquaintances) is activated, it spreads to the other elements of the individual's social and  
19  
20 personal identity. There is, however, one fundamental difference, in that friend affirmation  
21  
22 probably activates the individual's social identity and the social norms associated with his or  
23  
24 her group of friends. Given the association between the perceived drinking norm in the French  
25  
26 student population and alcohol consumption by (see pilot study), the more participants drank,  
27  
28 the greater the perceived discrepancy between their drinking behaviors and the low (17%)  
29  
30 drinking norm described in the experiment. Our comparison of group and self-affirmation  
31  
32 suggests that these two procedures activate different self-elements. This is discussed at greater  
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34 length in the General Discussion.  
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### 38 Experiment 3

39  
40 The previous two experiments stressed that the relationship between drinking  
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42 behaviors and general acceptance of the health message depended on self-affirmation and the  
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44 salience of a low drinking norm. This third experiment was intended to address some of their  
45  
46 shortcomings and provide a theoretical explanation. Above all, this third experiment sought to  
47  
48 reproduce the three-way interaction effect observed in Experiments 1 and 2 on general health  
49  
50 message acceptance (Hypothesis 3.1). It was important to rule out any suspicions about  
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52 participants' habitual drinking behavior as an independent variable, so we measured it one  
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54 week before the experiment.  
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3 First, we argued that there are two threats to self-integrity when individuals read a  
4 health message and learn that the norm is low. Reasoning that drinking alcohol at parties is  
5 extremely normative, we assumed that the health message per se (i.e., no normative  
6 information) would reveal a mismatch between alcohol consumption and the perceived social  
7 norm (or subjective norm), thus creating a threat to self-integrity. If this was indeed the  
8 situation, then we would expect the subjective norm to predict acceptance, and habitual  
9 alcohol consumption to constitute a confounding variable. If a low drinking norm were made  
10 salient then, as we have argued, it would constitute another threat to self-integrity.

11  
12 Participants would compare their behavior with the descriptive norm. In the absence of self-  
13 affirmation, the subjective norm would predict message acceptance in the no normative  
14 information condition, whereas both subjective norm and alcohol consumption would predict  
15 general acceptance in the low drinking norm condition (Hypothesis 3.2). Another implication  
16 of the double threat assumption is that individuals would experience less self-integrity in the  
17 low drinking norm condition (two threats) than in the no normative information condition  
18 (one threat). We therefore administered a self-integrity scale (Hypothesis 3.3). Informing  
19 individuals about a low drinking norm makes the discrepancy between their behaviors and the  
20 social norm salient for drinkers. Given that one function of norms is to inform people how to  
21 behave and think, it implies that people are misinformed about the drinking norm. Norms  
22 belong to the self-concept, so this type of announcement makes people think that they have no  
23 clear knowledge about the prevailing social norm. One component of self-knowledge is self-  
24 clarity (Campbell et al., 1996). We therefore predicted that the announcement of a low  
25 drinking norm would create a lack of self-clarity, owing to the discrepancy with the ingroup  
26 social norm (Hypothesis 3.4).

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28  
29 Second, we assumed that the simultaneous presence of self-affirmation and the low  
30 drinking norm would generate a discrepancy in identity (Hypothesis 3.5). We assumed that  
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3 self-affirmation and the announcement of a low drinking norm would each activate an identity  
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5 element, respectively a value and a drinker identity. Thus, self-knowledge would be more  
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7 accessible. Concretely, in line with Reed and Aspinwall (1998), in the no normative  
8  
9 information condition, self-affirmed participants would respond quicker than those in the no  
10  
11 self-affirmation condition to a questionnaire with self-focused items. Moreover, we assumed  
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13 that the announcement of a low drinking norm would prompt participants to categorize  
14  
15 themselves as drinkers. This announcement would therefore facilitate responses to the self-  
16  
17 related questionnaire in the low drinking norm condition compared with the no normative  
18  
19 information condition. Finally, if the self-affirmation procedure and the announcement of a  
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21 low drinking norm did indeed trigger an identity discrepancy, then participants would find it  
22  
23 harder to access their self-concept and would respond more slowly. In other words, the self-  
24  
25 affirmation (without the low drinking norm) and low drinking norm conditions would activate  
26  
27 a single identity and thus facilitate access to self-knowledge. Conversely, when no identity  
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29 was activated (no self-affirmation/no normative information condition) or when there was an  
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31 identity discrepancy, self-knowledge would be less easy to access, and responses to self-  
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33 related items would be correspondingly slower.  
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39 Third, we hypothesized that the announcement of a low descriptive norm threatens  
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41 group cohesion (Hypothesis 3.6). Describing a low binge drinking norm might trigger a  
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43 feeling of deviance among the heaviest drinkers, and threaten group cohesion (Abrams et al.,  
44  
45 2002). These individuals might attempt to preserve this cohesion by overestimating the  
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47 beneficial effects of binge drinking at parties with friends in terms of socialization, as opposed  
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49 to relaxation (Lee, Maggs, Neighbors, & Patrick, 2011; Park, 2004). We predicted that  
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51 individuals in the low binge-drinking norm condition would emphasize the role of alcohol in  
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53 socializing and creating bonds as a function of their alcohol-related habits. Socialization  
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55 arguments such as these serve to justify unhealthy behaviors without creating a self-threat.  
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Having *good* reasons to drink may protect people's positive self-integrity, in that they do not perceive heavy drinking to be a threat to group cohesion. In other words, external justifications protect the drinker's identity and underscore the utility of alcohol for group cohesion. Overjustifying binge drinking as a way of socializing allows individuals to continue conforming to the social norm (Cialdini & Trost, 1998). We predicted that the more participants were accustomed to drinking, the more they would use the coping strategy of citing external justifications in the low binge-drinking norm condition. If participants read a message about the dangers of alcohol that did not contain any normative information, then self-affirmation would protect their positive self-integrity. That is, it would protect their identity and spare them from having to justify their alcohol-related behavior. In other words, participants would not need to resort to external justifications to maintain positive self-integrity. They would be able to uncouple their self-concept and external justifications. Finally, assuming that the low binge drinking norm condition would reduce self-clarity and force individuals to overestimate the role of alcohol in socialization, we predicted that self-clarity would mediate the relationship between alcohol intake and the socialization justification.

### Population and experimental design

A total of 166 students (112 women,  $M_{age} = 21.11$  years,  $SD = 1.82$ , range = 18-25 years) from Aix-Marseille University, France, voluntarily took part in the third experiment. They were randomly assigned to one of four experimental conditions in a 2 (self-affirmed vs. no self-affirmation)  $\times$  2 (no normative information vs. low descriptive norm information) factorial between-participants design.

### Method

This third experiment consisted of two sessions one week apart. During the first session (baseline), participants were approached on campus by a female experimenter who

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2  
3 invited them to take part in an alcohol-related study. If they agreed, participants began by  
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5 filling out a 4-item scale on the subjective norm related to drinking (Cronbach's  $\alpha = .84$ )  
6  
7 adapted from Johnston and White (2003)'s article. Participants were asked to imagine what  
8  
9 most people who are important to them would think at a party held in the following two  
10  
11 weeks. They responded on 7-point bipolar items (*Disapprove/Approve*,  
12  
13 *Undesirable/Desirable*, *Should not at all/Should*, *Do not encourage at all/Encourage very*  
14  
15 *much*). Second, they responded to the items on alcohol intake used in Experiments 1 and 2  
16  
17 (Cronbach's  $\alpha = .70$ ). Each of these items was transformed into  $z$  score, and an alcohol intake  
18  
19 score was then computed from the three resulting  $z$  scores. Participants then responded to a  
20  
21 single item asking whether they had already experienced binge drinking.  
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26 Participants provided their email addresses and were contacted one week later. They  
27  
28 clicked on an Internet link to participate in the second session on line. The procedure was  
29  
30 identical to that of the second experiment. Participants underwent the value-affirmation  
31  
32 procedure and read the article about the dangers of binge drinking. As before, the normative  
33  
34 information was manipulated at the beginning of the article.  
35

36  
37 **Dependent measures.** In order to confirm our assumption about the accessibility of  
38  
39 the self-concept, we designed a 36-item questionnaire about identity (group identification  
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41 with friends, self-uncertainty, self-clarity, self-integrity, justifications for drinking and  
42  
43 acceptance). This questionnaire took several minutes to complete, and required participants to  
44  
45 ask questions about themselves. The timer was switched on when the participants started the  
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47 experiments and switched off when they had filled out the last item. In other words, the  
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49 duration of the experiment included the time taken to read the health message and respond to  
50  
51 the items. For technical reasons, we were not able to subtract the reading time. However,  
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53 Klein and Harris (2009)'s experiment showed that the reading time is exactly the same  
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55 regardless of habitual drinking behaviors and self-affirmation. We could therefore attribute  
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3 the difference in duration to the time needed to process the self-relevant questions (i.e.,  
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5 response time).  
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8 The other dependent variables were collected in the following order.  
9

10  
11 **Self-integrity.** This was measured with an 8-item scale (e.g., “I have the ability and  
12 skills to deal with whatever comes my way”, “I feel that I’m basically a moral person”,  
13 Cronbach’s  $\alpha = .75$ ) taken from Sherman and colleagues (2009). Participants responded by  
14  
15 indicating the extent to which they agreed with each statement (from 1 = *Strongly disagree* to  
16  
17  
18  
19  
20  
21 7 = *Strongly agree*).

22  
23 **Self-clarity.** Self-clarity was measured on an abridged version (5 items) of Campbell  
24 and colleagues’ (1996) scale, developed by Smith and colleagues (2007). Items (e.g., “My  
25 beliefs about myself conflict with one another”, Cronbach’s  $\alpha = .71$ ) were rated on a self-  
26  
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30 concept clarity scale ranging from 1 (*Very slightly or not at all*) to 5 (*Extremely*).

31  
32 **External justifications for drinking.** Inspired by themes taken from Park (2004),  
33 participants were asked to imagine the extent to which drinking alcohol at a party with friends  
34 might bring them benefits, rating two sets of items on scales ranging from 1 (*Does not help at*  
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*all*) to 7 (*Helps a lot*). Some external justifications were related to socializing with friends or  
acquaintances (“Meeting a new boy- or girlfriend”, “Making new acquaintances/friends”,  
“Strengthening bonds between friends”, “Bringing friends together”; Cronbach’s  $\alpha = .86$ ),  
while others were linked to relaxation (“Forgetting the problems of daily life”, “Relieving  
stress”, “Feeling relaxed”; Cronbach’s  $\alpha = .87$ ). These two sets of items were correlated,  
 $r(170) = .61, p < .001$ .

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**Acceptance of health message and perceived norm.** The two health message  
acceptance items were the same as those used in the first two experiments (taken from  
Sherman et al., 2000),  $r = .38, p < .001$ . Finally, participants responded to an open-ended item  
to check the number of students they thought had already experienced binge drinking (“Please



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3 give your estimate in percentage terms of the number of students who have indulged in binge  
4  
5 drinking”).

## 7 Results

### 10 Manipulation checks.

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12 **Binge drinking.** As observed in Experiments 1 and 2, the alcohol intake index was  
13  
14 correlated with the binge drinking item,  $\rho = .39, p < .001$ .

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16  
17 **Perceived norm.** We ran an ANCOVA on the 2 (no self-affirmation vs. self-  
18 affirmed)  $\times$  2 (no normative information vs. 17% descriptive norm) between-participants  
19 factorial design to probe participants' perceptions of the descriptive norm, with alcohol  
20 intake, age and sex as covariates. Results revealed a main effect of normative information,  
21  
22  $F(1, 164) = 29.14, p < .001, \eta^2_p = .15$ . In the no normative information condition, participants  
23  
24 estimated that on average, 59.07% ( $SD = 20.53$ ) of other students had already experienced  
25  
26 binge drinking. By comparison, in the 17% condition, participants provided lower estimates  
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28 ( $M = 41.07\%, SD = 24.35$ ). There was no main effect of value-affirmation procedure,  $F < 1$ .  
29  
30 Finally, we found a significant interaction effect,  $F(1, 164) = 7.17, p = .008, \eta^2_p = .04$ ,  
31  
32 indicating that self-affirmation increased estimates of the binge drinking norm in the no  
33  
34 normative information condition ( $M_{\text{No self-affirmation}} = 54.187, SD = 21.28$  and  $M_{\text{self-affirmed}} =$   
35  
36  $63.75, SD = 18.85$ ), whereas it decreases estimates of this norm in the low binge-drinking  
37  
38 norm condition ( $M_{\text{No self-affirmation}} = 45.74, SD = 22.93$  and  $M_{\text{self-affirmed}} = 37.13, SD = 24.97$ ).  
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### 46 Dependent variables.

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48 For all subsequent analyses, we used multi-step multiple regressions with interaction  
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50 effects (see Aiken & West, 1991). As binge drinking is differently experienced in France,  
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52 depending on the individual's age and sex, these two variables were entered in the multiple  
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54 regressions as covariates. Moreover, as there was an effect of response time in the second  
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56 session, this variable was also entered as a covariate. We tested the covariates (sex [-1 =  
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women and 1 = men], age) in Step 1. In Step 2, we analyzed the main effects of alcohol consumption (centered), self-affirmation (-1 = no self-affirmation and 1 = self-affirmed) and normative information (-1 = no normative information and 1 = low descriptive norm). The three two-way interaction terms (Self-affirmation  $\times$  Normative information, Alcohol consumption  $\times$  Self-affirmation, Alcohol consumption  $\times$  Normative information) and the critical three-way interaction term (Alcohol consumption  $\times$  Self-affirmation  $\times$  Normative information) were tested in Steps 3 and 4, respectively.

**Health message acceptance predicted by alcohol consumption.** In our first two experiments, we measured reported alcohol intake right the experimental procedure. In this third experiment, however, alcohol intake was measured one week prior to the experimental procedure, in order to make sure that it was a predictor of health message acceptance, and not the other way round (i.e., effect of acceptance on reported alcohol consumption). Although this variable was measured last, not first, the purpose of the analysis was to find out whether or not this third experiment reproduced the results for health message acceptance obtained in the previous two experiments. That is to say, whether or not participants discredited the message when they were in the self-affirmed and low descriptive drinking norm conditions. First, health message acceptance depended on drinking habits,  $\beta = -.34$ ,  $t(56) = -4.43$ ,  $p < .001$ . The more alcohol participants were accustomed to drinking, the less they accepted the health message's conclusions. When we looked at whether this experiment replicated the three-way interaction (Hypothesis 3.1) between alcohol intake, self-affirmation and normative information observed in the first two experiments, we found only borderline significance,  $\beta = -.15$ ,  $t(152) = -1.91$ ,  $p = .057$ . In order to break this three-way interaction down, we ran regressions of alcohol intake on acceptance in the four experimental conditions. When participants were not self-affirmed, alcohol intake marginally predicted acceptance of the health message in the no normative information condition,  $\beta = -.30$ ,  $t(36) = -1.85$ ,  $p = .072$ ,

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3 and significantly so in the low drinking norm condition,  $\beta = -.46$ ,  $t(49) = -3.25$ ,  $p = .002$ . As  
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5 expected, when participants were self-affirmed, they responded differently, depending on the  
6  
7 normative condition. When they were not given any normative information, there was no  
8  
9 relationship between alcohol intake and acceptance,  $\beta = -.03$ ,  $t(32) = -.18$ ,  $p = .859$ . In other  
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11 words, value affirmation reduced reliance on discrediting as a coping strategy. As observed  
12  
13 previously, value-affirmation did not reduce discrediting in the low drinking norm condition,  
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15  $\beta = -.57$ ,  $t(48) = -4.74$ ,  $p < .001$ . Participants continued to discredit the health message  
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17 according to their alcohol intake. In addition, there was a significant two-way interaction  
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19 between normative information and alcohol intake,  $\beta = -.20$ ,  $t(157) = -2.71$ ,  $p = .008$ . None of  
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21 the other main effects or interaction effects was significant (see left-hand side of Table 1).  
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25 We also tested our model by controlling for the subjective norm. We ran the same  
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27 multiple regressions as before, except that subjective norm was entered as a covariate in Step  
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29 1 (for full results, see right-hand side of Table 1). This covariate significantly predicted  
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31 acceptance,  $\beta = -.39$ ,  $t(158) = -5.37$ ,  $p < .001$ . The more participants believed in a binge-  
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33 drinking norm, the more they discredited the health message. Interestingly, the three-way  
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35 interaction ceased to be significant when subjective norm was entered as a covariate,  $\beta = -.09$ ,  
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37  $t(151) = -1.28$ ,  $p = .203$  (Hypothesis 3.2), leaving a two-way interaction between alcohol  
38  
39 consumption and normative information,  $\beta = -.17$ ,  $t(152) = -2.30$ ,  $p = .023$ . This means that  
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41 when the subjective norm was controlled for, and whatever the self-affirmation condition,  
42  
43 alcohol consumption predicted acceptance in the low descriptive norm condition,  $\beta = -.45$ ,  
44  
45  $t(88) = -3.69$ ,  $p < .001$ , but not in the no normative information condition,  $\beta = -.07$ ,  $t(69) = -$   
46  
47  $.54$ ,  $p = .592$ . In other words, as previously observed, alcohol consumption was not a  
48  
49 predictor in the no normative information condition, regardless of whether participants were  
50  
51 self-affirmed. Alcohol consumption marginally predicted acceptance,  $\beta = -.30$ ,  $t(36) = -1.85$ ,  $p$   
52  
53  $= .072$ , in the no normative information and no affirmation condition, but when it was entered  
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3 together with subjective norm in a multiple regression,  $\beta = -.07$ ,  $t(69) = -.54$ ,  $p = .592$ , it  
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5 behaved as a confounding variable (Hypothesis 3.2). Only subjective norm still marginally  
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7 predicted acceptance,  $\beta = -.34$ ,  $t(35) = -1.88$ ,  $p = .068$ .

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9  
10 **Health message acceptance predicted by subjective norm.** We sought to examine  
11  
12 the subjective norm's influence on health message acceptance further. We ran multi-step  
13  
14 regressions as before (except that subjective norm replaced alcohol consumption). In Step 1,  
15  
16 we entered the covariates (sex, age, response time and alcohol consumption). In the second  
17  
18 step, we tested the main effects (subjective norm [centered], normative information and self-  
19  
20 affirmation). The two-way interaction terms were analyzed in the third step, and the three-way  
21  
22 interaction in the fourth step. Overall, two significant effects emerged (for the other effects,  
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24 see left-hand side of Table 2): a main effect of subjective norm,  $\beta = -.21$ ,  $t(155) = -2.63$ ,  $p =$   
25  
26  $.009$ , was modulated by an interaction between subjective norm and self-affirmation,  $\beta = -.15$ ,  
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28  $t(152) = -2.04$ ,  $p = .043$ . This interaction effect means that the link (in absolute values)  
29  
30 between subjective norm and acceptance was higher in the no self-affirmation condition,  $\beta = -$   
31  
32  $.36$ ,  $t(76) = -3.21$ ,  $p = .002$ , than in the self-affirmation condition,  $\beta = -.24$ ,  $t(81) = -1.23$ ,  $p =$   
33  
34  $.029$ . In other words, self-affirmation significantly decreased the effect of subjective norm on  
35  
36 acceptance. The threat to self-integrity induced by the discrepancy with the subjective norm  
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38 was partly uncoupled by self-affirmation.

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42 **Self-integrity.** To check whether the announcement of a low drinking norm was  
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44 more threatening to self-integrity than the condition without this information, we ran a  
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46 hierarchical regression on the self-integrity score. We observed a significant effect of  
47  
48 normative information,  $\beta = -.18$ ,  $t(76) = -2.27$ ,  $p = .025$  (Hypothesis 3.3). Participants in the  
49  
50 low descriptive norm condition reported lower self-integrity ( $M = 4.80$ ,  $SD = .79$ ) than in the  
51  
52 no normative information condition ( $M = 5.08$ ,  $SD = .79$ ). Analysis also yielded a marginal  
53  
54 effect of alcohol consumption on self-integrity,  $\beta = -.18$ ,  $t(158) = -1.83$ ,  $p = .070$ . The more  
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3 alcohol they were accustomed to drinking, the more participants' self-integrity decreased.

4  
5 There was no other main effect or interaction effect.

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7 **Self-clarity.** Analysis showed that alcohol intake predicted self-concept clarity,  $\beta = -$   
8  
9  
10 .16,  $t(166) = -2.06$ ,  $p = .041$ . However, this result was modulated by a significant interaction  
11  
12 effect between alcohol intake and normative information,  $\beta = -.16$ ,  $t(161) = -2.03$ ,  $p = .044$ ,  
13  
14 indicating that without normative information, self-clarity was not predicted by alcohol  
15  
16 intake,  $\beta = -.03$ ,  $t(74) = -.24$ ,  $p = .808$ , whereas in the low descriptive norm condition it was,  $\beta$   
17  
18 =  $-.32$ ,  $t(92) = -3.31$ ,  $p = .001$  (Hypothesis 3.4). The more alcohol participants drank, the more  
19  
20 they felt their self-concept lacked clarity. In other words, the heaviest drinkers had less  
21  
22 knowledge about their self-concept than the other drinkers. This results supports Hypothesis  
23  
24 3.3. None of the other main and interaction effects were significant.

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26  
27 **Response times.** We sought to find out whether alcohol consumption was linked to  
28  
29 the time it took to respond to the self-related questionnaire, as a function of the self-  
30  
31 affirmation and normative information variables. Again, we tested these effects with a  
32  
33 hierarchical regression featuring the interaction terms. Sex, age and subjective norm were  
34  
35 entered as covariates in Step 1. First, analysis yielded a significant effect of alcohol intake on  
36  
37 response times,  $\beta = .23$ ,  $t(159) = 2.73$ ,  $p = .007$ . Self-affirmation and normative information  
38  
39 had no effect on response times. Analysis also yielded a marginally significant interaction  
40  
41 effect between the self-affirmation and normative information variables,  $\beta = .15$ ,  $t(156) =$   
42  
43  $1.94$ ,  $p = .054$ . This effect indicated that the difference in response times tended to decrease  
44  
45 between the no normative information ( $M = 17.26$ ,  $SD = 8.65$ ) and low descriptive norm  
46  
47 conditions ( $M = 15.93$ ,  $SD = 7.28$ ) when the participants were not self-affirmed, and increase  
48  
49 when the participants were self-affirmed ( $M_{\text{No normative information}} = 15.74$ ,  $SD = 6.25$  and  $M_{\text{Low}}$   
50  
51  $\text{drinking norm} = 19.19$ ,  $SD = 11.09$ ). Hypothesis 3.5 was supported by a significant three-way  
52  
53 interaction effect,  $\beta = .22$ ,  $t(155) = 2.74$ ,  $p = .007$ . To break this effect down, we ran  
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3 regressions in each experimental condition between alcohol consumption and response times.  
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5 Alcohol consumption predicted response times in the no self-affirmation/no normative  
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7 information and self-affirmation/low drinking norm conditions,  $\beta = .48$ ,  $t(33) = 2.45$ ,  $p = .020$   
8  
9 and  $\beta = .38$ ,  $t(46) = 2.35$ ,  $p = .023$ , respectively. In these conditions, the more alcohol  
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11 participants were accustomed to drinking, the more time they needed to respond to the self-  
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13 related questionnaire. By contrast, in the other two conditions, there was no significant  
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15 relationship between alcohol consumption and response times.  
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18  
19 **External justifications for drinking.** In order to ascertain whether the  
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21 announcement of a low drinking norm generated fear of group cohesion disintegrating, we  
22  
23 looked at whether participants sought to justify the usefulness of drinking alcohol in terms of  
24  
25 forging relationships with friends (Hypothesis 3.6).  
26

27  
28 **Socialization.** First, the more participants drank at parties, the more they cited  
29  
30 socialization arguments to justify their drinking,  $\beta = .26$ ,  $t(168) = 3.44$ ,  $p < .001$ . Drinking  
31  
32 behavior was justified by an enhanced ability to forge social relationships. This effect was  
33  
34 modulated by an interaction effect between alcohol consumption and social norm, in support  
35  
36 of our hypothesis,  $\beta = .15$ ,  $t(160) = 1.98$ ,  $p = .05$ . In other words, only in the low (17%)  
37  
38 drinking norm condition did alcohol intake predict social motivation,  $\beta = .35$ ,  $t(92) = 3.57$ ,  $p =$   
39  
40  $.001$ , as there was no relationship between alcohol consumption and social relationships in the  
41  
42 no normative information condition,  $\beta = .15$ ,  $t(74) = 1.26$ ,  $p = .212$ . There was no other main  
43  
44 effect or interaction effect, all  $ts < 1$ .  
45

46  
47 **Relaxation.** In order to demonstrate that the low descriptive norm condition only  
48  
49 influenced socialization-related justifications, we ran multiple regressions with interaction  
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51 effects on the relaxation justification for drinking. We only found a main effect of alcohol  
52  
53 intake on relaxation,  $\beta = .25$ ,  $t(159) = 3.19$ ,  $p = .002$ . The more alcohol participants drank, the  
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more they thought that drinking alcohol enabled them to relax with friends at parties. There was no other main or interaction effect.

*The behavior-socialization link mediated by self-concept clarity.* We also sought to ascertain whether self-concept clarity was a mediator between alcohol intake and socialization as an external justification in the 17% condition (see Fig. 3). The socialization justification for drinking alcohol was predicted both by alcohol intake (direct effect),  $\beta = .40$ ,  $t(91) = 4.23$ ,  $p < .001$ , and by self-clarity (mediator),  $\beta = -.35$ ,  $t(91) = -3.57$ ,  $p = .001$ . Moreover, alcohol intake predicted self-concept clarity,  $\beta = -.28$ ,  $t(91) = -2.74$ ,  $p = .007$ . Finally, we analyzed the indirect effect between alcohol intake and the socialization justification by entering self-concept clarity in the multiple regressions,  $\beta = .33$ ,  $t(91) = 3.46$ ,  $p = .001$ . We tested whether the indirect effect was statistically different from the direct effect. Tests revealed a difference between the two, Sobel's  $z = 1.93$ ,  $p = .053$ ; 95% CI [0.0258, 0.4886], with 5000 resamples. In other words, the relationship between alcohol intake and the socialization justification was partially mediated by self-concept clarity in the 17% condition, regardless of self-affirmation.

### Discussion

This third experiment yet again confirmed our prediction that a self-affirmation procedure would not reduce discrediting among participants in the low binge drinking norm condition according to their alcohol consumption. Importantly, it replicated the findings of the first two experiments, even though alcohol-related behavior was measured prior to the experimental procedure. It appeared to show that health message discrediting is preferred to self-affirmation as a self-protection strategy.

The threat to self-integrity was differently experienced according to whether or not the health message included the low descriptive norm. First, the announcement of a low drinking norm decreased self-integrity compared with the no normative information condition. This result seems to indicate that the low drinking norm announcement was indeed

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3 a threat to self-integrity. Second, the subjective norm was a predictor of acceptance in both  
4  
5 the no normative information and low descriptive norm conditions. Moreover, in the low  
6  
7 descriptive norm condition, alcohol consumption also predicted health message acceptance. In  
8  
9 other words, in the low descriptive norm condition, people had to manage a double self-threat,  
10  
11 whereas in the no normative condition, they were only exposed to a single self-threat. Self-  
12  
13 affirmation obviated the need to resort to discrediting in the no normative information  
14  
15 condition (i.e., no link between drinking behavior and acceptance). Neither subjective norm  
16  
17 nor alcohol consumption predicted acceptance. Self-affirmation did, however, have a specific  
18  
19 effect on acceptance in the low descriptive norm condition. The threat to self-integrity  
20  
21 induced by the discrepancy with the subjective norm was reduced by the self-affirmation  
22  
23 procedure. However alcohol consumption continued to predict discrediting. This third  
24  
25 experiment suggests that participants preferred to manage each threat by adopting their own  
26  
27 specific and appropriate coping strategy as a function of experimental condition. Proposing a  
28  
29 self-affirmation strategy prior to the self-threat did not necessarily mean it would be used.  
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34 We put forward two major explanations for the lack of effectiveness in disrupting the  
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36 link between drinking behavior and acceptance when people are confronted with a low  
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38 drinking norm. First, to preserve their self-integrity, people need to be to retrieve self-  
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40 resources. This experiment suggests that some circumstances hamper retrieval from memory.  
41  
42 Participants needed more time to respond to a self-related questionnaire. Second, the  
43  
44 announcement of a low descriptive norm is a deviance situation for drinkers, especially very  
45  
46 heavy drinkers. Results showed that participants lost self-clarity and cited the forging of  
47  
48 social bonds to justify their drinking behavior. This confirms the impossibility of using self-  
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50 affirmation to preserve one's self-integrity when the threat depends partly on others (Prewitt-  
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52 Freilino & Bosson, 2008). Deviance had several consequences for self-integrity. We found  
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54 that the low descriptive norm condition was associated with lower self-integrity than the no  
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3 normative information condition was. However, the announcement of the low drinking norm  
4 highlighted a risk of rejection and jeopardized group cohesion. Self-affirmation seemed  
5 unable to manage this threat. Self-affirmed participants therefore continued to justify their  
6 behavior by citing the usefulness of alcohol for creating relationships. Despite being a threat  
7 to self-integrity, the feeling of deviance triggered the use of coping strategies (here,  
8 socialization justifications and discrediting) rather than the use of self-affirmation.  
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### 16 **General Discussion**

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18 Informing people about the health risks of alcohol consumption and providing a low  
19 binge-drinking descriptive norm affects the choice of coping strategy. Individuals prefer to  
20 discredit the message's conclusion rather than to resort to a self-affirmation strategy. We  
21 observed a robust effect in the low binge-drinking norm condition across all three  
22 experiments, as none of the self-affirmation procedures we used (i.e., attribute affirmation,  
23 value affirmation and group affirmation) uncoupled the relationship between drinking habits  
24 and acceptance of the message's conclusions. Results suggest that the efficiency of self-  
25 affirmation is undermined by the discrepancy between the descriptive norm and alcohol-  
26 related behaviors. The present study therefore highlights some of the limitations of using a  
27 combination of social norms and self-affirmation procedures to encourage target audiences to  
28 accept health messages that run counter to their past behavior.  
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### 43 **Theoretical Implications for Self-Affirmation Theory**

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45 This observation can help us gain a clearer grasp of the self-affirmation process.  
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47 **Self-cognition network.** Many studies have highlighted the psychological benefits of self-  
48 affirmation in a multitude of situations (e.g., cognitive dissonance, stereotype threat,  
49 threatening information). However, self-affirmation cannot be used to protect the self-concept  
50 in every threatening situation. There are a number of limitations to protecting one's positive  
51 self-integrity with a self-affirmation procedure (Blanton et al., 1997; Prewitt-Freilino &  
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3 Bosson, 2008; Shapiro et al., 2013; Sherman et al., 2009). Our research suggests that self-  
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5 affirmation is a potent self-protection strategy, providing the threatening information does not  
6  
7 reduce self-clarity. This has major implications for self-affirmation theory. As previously  
8  
9 suggested by Sherman and Hartson (2011), an affirmed value or attribute activates a self-  
10  
11 related cognition network. In other words, activation spreads from a single important element  
12  
13 of identity to other cognitions. For this reason, the relationship between all the different  
14  
15 activated cognitions must be free of uncertainty and identity conflict. If cognitive relations are  
16  
17 damaged, this can hinder the spread of activation.  
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21 Schematically, identity comes in two parts: personal identity and social identity. By  
22  
23 activating one or other of these parts, Experiment 2 brought to light a difference in the  
24  
25 affirmation of the collective versus the personal self. This suggests that the activation of  
26  
27 personal identity does not recruit the same self-cognition network as that of social identity. In  
28  
29 other words, affirming an important self-element does not activate overall identity. This  
30  
31 conclusion is also supported by the difference in the effects of attribute and value affirmation  
32  
33 observed in Experiments 1, 2 and 3. The network activated in the wake of attribute or value  
34  
35 affirmation (self-cognition) appeared to have varying amounts of self-resources. When the  
36  
37 affirmation of creativity (attribute affirmation; Exp. 1) was effective (i.e., no normative  
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39 information), it lessened– but did not totally uncouple–the relationship between previous  
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41 alcohol-related behaviors and message acceptance, whereas value affirmation totally  
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43 uncoupled it.  
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48 The activation of different self-cognition networks according to which identity  
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50 element is activated may have several consequences. For instance, the norms that are  
51  
52 activated may differ according to the mode of affirmation. Although several studies support  
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54 the notion that group affirmation enables us to cope with self-threats, in Experiment 2, this  
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56 procedure failed to uncouple the negative relationship between past alcohol-related behaviors  
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3 and message acceptance. This can be attributed to the activation of a norm of binge or heavy  
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5 drinking among the students and their friends. The group therefore prescribed behaviors that  
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7 contradicted the health message. In other words, the threatening information (avoid binge  
8  
9 drinking for health reasons) was set against the prescription of heavy drinking by the activated  
10  
11 self-cognition network. By the same token, self-affirmed individuals presumably activate their  
12  
13 own personal norms, including the desire for good health (Sherman & Cohen, 2006). In other  
14  
15 words, the self-affirmation procedure is a way of preserving one's personal norms without  
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17 perceiving the information as threatening.  
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21 *Perceiving the threatening information from a broader perspective.* Affirming an  
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23 important self-element enables individuals to change their perception of the threatening  
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25 information (Critcher & Dunning, 2015; Sherman & Hartson, 2011; Sherman, 2013). Wakslak  
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27 and Trope (2009) demonstrated that people perceive a higher level of construal after being self-  
28  
29 affirmed (see also Sherman et al., 2013). In particular, the self-concept is perceived of as being  
30  
31 more coherent. As in our third experiment, Wakslak and Trope (2009, study 1) measured self-  
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33 concept clarity. The beneficial effects of self-affirmation may be felt if the incongruent norm  
34  
35 does not undermine the perception of a coherent self-concept owing to deviance. If people feel  
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37 unstable and incoherent, they may not find the necessary self-resources in their network of  
38  
39 self-cognitions. Moreover, in our own study, even after participants had been self-affirmed, the  
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41 information still seemed to be related to the self-concept when the incongruent norm was  
42  
43 given salience. In other words, the higher level of construal generated by the self-affirmation  
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45 process may subsequently be altered. In Wakslak and Trope (2009)'s study, the beneficial  
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47 effects of self-affirmation were measured in the absence of any self-threat. These positive  
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49 outcomes may sometimes be unsustainable, depending on the type of self-threat. The self-  
50  
51 affirmation procedure is a source of information  
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56 about oneself. However, if another piece of information (e.g., normative) is also present  
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3 during the processing, people may consider both pieces of information, thus inhibiting the  
4  
5 beneficial effects of self-affirmation.  
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7       **Self-regulation resources.** Self-affirmation contributes to self-regulation, that is,  
8  
9 “the capacity of organisms (here, human beings) to override and alter their responses”  
10  
11 (Baumeister & Vohs, 2007, p. 2). Individuals spontaneously use discrediting as a coping  
12  
13 strategy when confronted with a health-risk message. However, self-affirmation enables  
14  
15 individuals to access norms. In the situation of a health message without any normative  
16  
17 information, the norm is probably a desire to be healthy. Thus, self-affirmation enables  
18  
19 individuals to respond in a way that is coherent with this norm. Conversely, information about  
20  
21 a low binge drinking norm may give salience to two conflicting norms: being healthy and  
22  
23 socializing with friends. This conflict arises because the first norm encourages abstinence,  
24  
25 whereas young people think they need to drink in order to achieve the second one. According  
26  
27 to Baumeister and Vohs (2007), conflicting norms have an impact on the self-regulation  
28  
29 process. Their interpretation was corroborated by our measure of self-clarity. The normative  
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31 information (17% of peers have engaged in binge drinking) affected the self-concept because  
32  
33 participants felt more uncertain, incoherent and in conflict. In other words, the power of self-  
34  
35 affirmation to neutralize self-threats may be undermined if the self-regulation process is  
36  
37 hindered. Then again, a recent study showed that self-affirmation can actually increase self-  
38  
39 regulatory resources (Huynh, Stefanucci, & Aspinwall, 2014). This suggests that the  
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41 conditions for mobilizing self-resources in our study were altered or blocked by the low binge  
42  
43 drinking norm, as self-affirmation slowed the retrieval of self-knowledge in the low drinking  
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45 norm condition.  
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52       **Self-affirmation and deviance.** Self-affirmation is an undeniably potent process for  
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54 preserving self-integrity (Sherman, 2013). In Experiment 3, however, a threat to self-integrity  
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56 associated with a risk of deviance was managed in a way other than self-affirmation. This  
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3 suggests that people weigh up the validity of a defensive strategy before using it. The use of  
4  
5 self-affirmation does not dispel the risks of rejection and reduced group cohesion. Self-  
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7 affirmation alone cannot manage the overall threat. Trying to manage the threat by self-  
8  
9 affirmation could trigger other concerns. If people accepted the health message, for instance,  
10  
11 they would have to take the normative information into account, and this would highlight the  
12  
13 feeling of deviance.  
14

### 15 16 **Conclusion**

17  
18 Taken together, the results of our three experiments confirmed that self-affirmation  
19  
20 reduces the defensive bias in the absence of normative information (Sherman & Cohen, 2006;  
21  
22 Sherman et al., 2000). Despite the self-affirmation procedure, however, the defensive bias  
23  
24 persisted in the low binge-drinking norm condition. This observation could explain why low  
25  
26 social norms have no influence on discrediting when they contradict excessively high  
27  
28 perceived norms (Blanton et al., 2008).  
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31  
32 These results suggest that self-affirmation cannot resolve both deviance and the  
33  
34 threat to self-integrity. However, the absence of an effect of self-affirmation on acceptance  
35  
36 does not mean that self-affirmation plays no role whatsoever. Self-affirmation may be  
37  
38 oriented toward the defense of group concerns which, in turn, may sustain or strengthen  
39  
40 health message discrediting.  
41

42  
43 People seek to protect their positive self-integrity any way they can. In the short  
44  
45 term, they do not care about whether they shield themselves using discrediting or a self-  
46  
47 affirmation strategy. Only the end result (protecting the self-concept) is psychologically  
48  
49 important, and the actual means to that end does not matter. Over the longer term, self-  
50  
51 affirmation seems to be more advantageous than discrediting. Future research will have to  
52  
53 circumscribe the self-affirmation process more accurately, and look for ways of enhancing its  
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55 beneficial effects in situations that are less favorable to self-affirmation. Notably, in the  
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present study, we only measured overall acceptance. Future studies will need to explore whether our results can be generalized to personal acceptance (Harris & Epton, 2009).

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**References**

- Abrams, D., Marques, J., Bown, N., & Dougill, M. (2002). Anti-norm and pro-norm deviance in the bank and on the campus: Two experiments on subjective group dynamics. *Group Processes & Intergroup Relations*, 5(2), 163–182. doi:10.1177/1368430202005002922
- Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: Sage Publications.
- Armitage, C. J., Harris, P. R., & Arden, M. A. (2011). Evidence that self-affirmation reduces alcohol consumption: Randomized exploratory trial with a new, brief means of self-affirming. *Health Psychology*, 30(5), 633–641. doi:10.1037/a0023738
- Armitage, C. J., Harris, P. R., Hepton, G., & Napper, L. (2008). Self-affirmation increases acceptance of health-risk information among UK adult smokers with low socioeconomic status. *Psychology of Addictive Behaviors*, 22(1), 88–95. doi:10.1037/0893-164X.22.1.88
- Aronson, J., Blanton, H., & Cooper, J. (1995). From dissonance to disidentification: Selectivity in the self-affirmation process. *Journal of Personality and Social Psychology*, 68(6), 986–996. doi:10.1037//0022-3514.68.6.986
- Aronson, J., Cohen, G. L., & Nail, P. R. (1999). Self-affirmation theory: An update and appraisal. In E. Harmon-Jones & J. Mills (Eds.), *Cognitive dissonance: Progress on a pivotal theory in social psychology* (pp. 127–147). Washington, DC: American Psychological Association.

## SELF-AFFIRMATION AND ALCOHOL

46

- 1  
2  
3 Baumeister, R. F., & Vohs, K. D. (2007). Self-regulation, ego depletion, and motivation.  
4  
5 *Social and Personality Psychology Compass*, 1(1), 115–128. doi:10.1111/j.1751-  
6  
7 9004.2007.00001.x  
8  
9  
10  
11 Blanton, H., Cooper, J., Silkurnik, I., & Aronson, J. (1997). When bad things happen to good  
12  
13 feedback: Exacerbating the need for self-justification with self-affirmations. *Personality*  
14  
15 *and Social Psychology Bulletin*, 23(7), 684–692. doi:10.1177/0146167297237002  
16  
17  
18  
19 Blanton, H., Köblitz, A., & McCaul, K. D. (2008). Misperceptions about norm  
20  
21 misperceptions : Descriptive, injunctive, and affective “social norming” efforts to change  
22  
23 health behaviors. *Social and Personality Psychology Compass*, 3, 1379–1399.  
24  
25 doi:10.1111/j.1751-9004.2008.00107.x  
26  
27  
28  
29 Borsari, B., & Carey, K. B. (2008). Descriptive and injunctive norms in college drinking: A  
30  
31 meta-analytic integration. *Journal of Studies on Alcohol*, 64(3), 331–341.  
32  
33  
34 Brewer, M. B., & Gardner, W. (1996). Who is this “We”? Levels of collective identity and  
35  
36 self representations. *Journal of Personality and Social Psychology*, 71(1), 83–93.  
37  
38  
39 doi:10.1037//0022-3514.71.1.83  
40  
41  
42 Campbell, J. D., Trapnell, P. D., Heine, S. J., Katz, I. M., Lavallee, L. F., & Lehman, D. R.  
43  
44 (1996). Self-concept clarity: Measurement, personality correlates, and cultural  
45  
46 boundaries. *Journal of Personality and Social Psychology*, 70(1), 141–156.  
47  
48  
49 doi:10.1037//0022-3514.70.1.141  
50  
51  
52 Christensen, P. N., Rothgerber, H., Wood, W., & Matz, D. C. (2004). Social norms and  
53  
54 identity relevance: A motivational approach to normative behavior. *Personality and*  
55  
56 *Social Psychology Bulletin*, 30(10), 1295–309. doi:10.1177/0146167204264480  
57  
58  
59  
60



- 1  
2  
3 Cialdini, R. B. (2003). Crafting normative messages to protect the environment. *Current*  
4  
5 *Directions in Psychological Science, 12*, 105–109. doi:10.1111/1467-8721.01242  
6  
7  
8  
9 Cialdini, R. B. (2007). Descriptive social norms as underappreciated sources of social control.  
10  
11 *Psychometrika, 72*(2), 263–268. doi:10.1007/s11336-006-1560-6  
12  
13  
14 Cialdini, R. B., Demaine, L. J., Sagarin, B. J., Barrett, D. W., Rhoads, K., & Winter, P. L.  
15  
16 (2006). Managing social norms for persuasive impact. *Social Influence, 1*(1), 3–15.  
17  
18 doi:10.1080/15534510500181459  
19  
20  
21  
22 Cialdini, R. B., Reno, R. R., & Kallgren, C. A. (1990). A focus theory of normative conduct:  
23  
24 Recycling the concept of norms to reduce littering in public places. *Journal of*  
25  
26 *Personality and Social Psychology, 58*(6), 1015–1026. doi:10.1037/0022-  
27  
28 3514.58.6.1015  
29  
30  
31  
32 Cialdini, R. B., & Trost, M. R. (1998). Social influence: Social norms, conformity and  
33  
34 compliance. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *The handbook of social*  
35  
36 *psychology* (4th ed., pp. 1551–1192). New York: McGraw-Hill.  
37  
38  
39  
40 Cohen, G. L., & Sherman, D. K. (2014). The psychology of change: Self-affirmation and  
41  
42 social psychological intervention. *Annual Review of Psychology, 65*, 333–71.  
43  
44 doi:10.1146/annurev-psych-010213-115137  
45  
46  
47  
48 Corbin, W. R., Iwamoto, D. K., & Fromme, K. (2011). Broad social motives, alcohol use, and  
49  
50 related problems: Mechanisms of risk from high school through college. *Addictive*  
51  
52 *Behaviors, 36*(3), 222–30. doi:10.1016/j.addbeh.2010.11.004  
53  
54  
55  
56  
57  
58  
59  
60

## SELF-AFFIRMATION AND ALCOHOL

48

- 1  
2  
3 Correll, J., Spencer, S. J., & Zanna, M. P. (2004). An affirmed self and an open mind: Self-  
4 affirmation and sensitivity to argument strength. *Journal of Experimental Social*  
5 *Psychology, 40*(3), 350–356. doi:10.1016/j.jesp.2003.07.001  
6  
7  
8  
9  
10  
11 Creswell, J. D., Lam, S., Stanton, A. L., Taylor, S. E., Bower, J. E., & Sherman, D. K. (2007).  
12 Does self-affirmation, cognitive processing, or discovery of meaning explain cancer-  
13 related health benefits of expressive writing? *Personality & Social Psychology Bulletin,*  
14 *33*(2), 238–250. doi:10.1177/0146167206294412  
15  
16  
17  
18  
19  
20  
21 Critcher, C. R., & Dunning, D. (2015). Self-affirmations provide a broader perspective on  
22 self-threat. *Personality and Social Psychology Bulletin, 41*(1), 3–18.  
23 doi:10.1177/0146167214554956  
24  
25  
26  
27  
28  
29 Dieterich, S. E., Stanley, L. R., Swaim, R. C., & Beauvais, F. (2013). Outcome expectancies,  
30 descriptive norms, and alcohol use: American Indian and white adolescents. *The Journal*  
31 *of Primary Prevention, 34*(4), 209–219. doi:10.1007/s10935-013-0311-6  
32  
33  
34  
35  
36 Epton, T., & Harris, P. R. (2008). Self-affirmation promotes health behavior change. *Health*  
37 *Psychology, 27*(6), 746–752. doi:10.1037/0278-6133.27.6.746  
38  
39  
40  
41  
42 Ferrer, R. A., Shmueli, D., Bergman, H. E., Harris, P. R., & Klein, W. M. P. (2011). Effects  
43 of self-affirmation on implementation intentions and the moderating role of affect. *Social*  
44 *Psychological and Personality Science, 3*(3), 300–307. doi:10.1177/1948550611419265  
45  
46  
47  
48  
49  
50 Glasford, D. E., Dovidio, J. F., & Pratto, F. (2009). I continue to feel so good about us: In-  
51 group identification and the use of social identity-enhancing strategies to reduce  
52 intragroup dissonance. *Personality and Social Psychology Bulletin, 35*(4), 415–27.  
53  
54  
55  
56  
57  
58  
59  
60

- 1  
2  
3 Griffin, D. W., & Harris, P. R. (2011). Calibrating the response to health warnings: Limiting  
4  
5 both overreaction and underreaction with self-affirmation. *Psychological Science, 22*(5),  
6  
7 572–8. doi:10.1177/0956797611405678  
8  
9
- 10 Gunn, G. R., & Wilson, A. E. (2011). Acknowledging the skeletons in our closet: The effect  
11  
12 of group affirmation on collective guilt, collective shame, and reparatory attitudes.  
13  
14 *Personality & Social Psychology Bulletin, 37*(11), 1474–1487.  
15  
16 doi:10.1177/0146167211413607  
17  
18
- 19 Harris, P. R. (2011). Self-affirmation and the self-regulation of health behavior change. *Self*  
20  
21 *and Identity, 10*(3), 304–314. doi:10.1080/15298868.2010.517963  
22  
23  
24  
25
- 26 Harris, P. R., & Epton, T. (2009). The impact of self-affirmation on health cognition, health  
27  
28 behaviour and other health-related responses: A narrative review. *Social and Personality*  
29  
30 *Psychology Compass, 3*(6), 962–978. doi:10.1111/j.1751-9004.2009.00233.x  
31  
32  
33
- 34 Harris, P. R., & Napper, L. (2005). Self-affirmation and the biased processing of threatening  
35  
36 health-risk information. *Personality & Social Psychology Bulletin, 31*(9), 1250–1263.  
37  
38 doi:10.1177/0146167205274694  
39  
40  
41
- 42 Hogg, M. A., & Reid, S. A. (2006). Social identity, self-categorization, and the  
43  
44 communication of group norms. *Communication Theory, 16*(1), 7–30.  
45  
46 doi:10.1111/j.1468-2885.2006.00003.x  
47  
48
- 49 Huynh, S., Stefanucci, J. K., & Aspinwall, L. G. (2014). Self-affirmation counters the effects  
50  
51 of self-regulatory resource depletion on height perception. *Journal of Experimental*  
52  
53 *Social Psychology, 52*, 96–100. doi:10.1016/j.jesp.2014.01.003  
54  
55  
56  
57  
58  
59  
60

## SELF-AFFIRMATION AND ALCOHOL

50

1  
2  
3 Jessop, D. C., Simmonds, L. V., & Sparks, P. (2009). Motivational and behavioural  
4  
5 consequences of self-affirmation interventions: A study of sunscreen use among women.  
6  
7 *Psychology & Health, 24*(5), 529–44. doi:10.1080/08870440801930320  
8

9  
10  
11 Johnston, K. L., & White, K. M. (2003). Binge-drinking: A test of the role of group norms in  
12  
13 the theory of planned behaviour. *Psychology & Health, 18*(1), 63–77.  
14  
15 doi:10.1080/0887044021000037835  
16

17  
18  
19 Kallgren, C. A., Reno, R. R., & Cialdini, R. B. (2000). A focus theory of normative conduct:  
20  
21 When norms do and do not affect behavior. *Personality and Social Psychology Bulletin,*  
22  
23 *26*(8), 1002–1012. doi:10.1177/01461672002610009  
24

25  
26 Klein, W. M. P., & Harris, P. R. (2009). Self-affirmation enhances attentional bias toward  
27  
28 threatening components of a persuasive message. *Psychological Science, 20*(12), 1463–  
29  
30 7. doi:10.1111/j.1467-9280.2009.02467.x  
31

32  
33  
34 Klein, W. M. P., Harris, P. R., Ferrer, R. A., & Zajac, L. E. (2011). Feelings of vulnerability  
35  
36 in response to threatening messages: Effects of self-affirmation. *Journal of Experimental*  
37  
38 *Social Psychology, 47*(6), 1237–1242. doi:10.1016/j.jesp.2011.05.005  
39  
40

41  
42 Klein, W. M. P., Lipkus, I. M., Scholl, S. M., McQueen, A., Cerully, J. L., & Harris, P. R.  
43  
44 (2010). Self-affirmation moderates effects of unrealistic optimism and pessimism on  
45  
46 reactions to tailored risk feedback. *Psychology & Health, 25*(10), 1195–1208.  
47  
48 doi:10.1080/08870440903261970  
49

50  
51  
52 Kunda, Z. (1987). Motivated inference: Self-serving generation and evaluation of causal  
53  
54 theories. *Journal of Personality and Social Psychology, 53*(4), 636–647.  
55  
56 doi:10.1037//0022-3514.53.4.636  
57

1  
2  
3 Lee, C. M., Maggs, J. L., Neighbors, C., & Patrick, M. E. (2011). Positive and negative  
4  
5 alcohol-related consequences: Associations with past drinking. *Journal of Adolescence*,  
6  
7 34(1), 87–94. doi:10.1016/j.adolescence.2010.01.009  
8  
9

10  
11 Lewis, M. A., & Neighbors, C. (2006). Descriptive drinking norms education : A review of  
12  
13 the research on personalized normative feedback. *Journal of American College Health*,  
14  
15 54(4), 213–218. doi:10.3200/JACH.54.4.213-218  
16  
17

18  
19 Liberman, A., & Chaiken, S. (1992). Defensive processing of personally relevant health  
20  
21 messages. *Personality & Social Psychology Bulletin*, 18(6), 669–679. doi:10.1037/0022-  
22  
23 3514.53.4.636  
24  
25

26  
27 MacKinnon, D. P., Krull, J. L., & Lockwood, C. M. (2000). Equivalence of the mediation,  
28  
29 confounding and suppression effect. *Prevention Science*, 1(4), 1–13.  
30  
31

32  
33 Major, B., & O'Brien, L. T. (2005). The social psychology of stigma. *Annual Review of*  
34  
35 *Psychology*, 56, 393–421. doi:10.1146/annurev.psych.56.091103.070137  
36  
37

38  
39 Marques, J. M., & Yzerbyt, V. Y. (1988). The black sheep effect: Judgmental extremity  
40  
41 towards ingroup members in inter- intra-group situations. *European Journal of Social*  
42  
43 *Psychology*, 18(3), 287–292. doi:10.1002/ejsp.2420180308  
44  
45

46  
47 McCrea, S. M., & Hirt, E. R. (2011). Limitations on the substitutability of self-protective  
48  
49 processes. *Social Psychology*, 42(1), 9–18. doi:10.1027/1864-9335/a000038  
50  
51

52  
53 McQueen, A., & Klein, W. (2006). Experimental manipulations of self-affirmation: A  
54  
55 systematic review. *Self and Identity*, 5(4), 289–354. doi:10.1080/15298860600805325  
56  
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## SELF-AFFIRMATION AND ALCOHOL

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54  
55  
56  
57  
58  
59  
60
- Moreira, M. T., Smith, L. A., & Foxcroft, D. (2010). Social norms interventions to reduce alcohol misuse in university or college students. *The Cochrane Database Systematic Reviews*, 8(3). doi:10.1002/14651858.CD006748.pub2
- Neighbors, C., Lee, C. M., Lewis, M. A., Fossos, N., & Larimer, M. E. (2007). Are social norms the best predictor of outcomes among heavy-drinking college students? *Journal of Studies on Alcohol and Drugs*, 68(4), 556–565.
- Page, R. M., Ihasz, F., Hantiu, I., Simonek, J., & Klarova, R. (2008). Social normative perceptions of alcohol use and episodic heavy drinking among Central and Eastern European adolescents. *Substance Use & Misuse*, 43(3-4), 361–73.  
doi:10.1080/10826080701202866
- Park, C. L. (2004). Positive and negative consequences of alcohol consumption in college students. *Addictive Behaviors*, 29(2), 311–321. doi:10.1016/j.addbeh.2003.08.006
- Perkins, H. W., Linkenbach, J. W., Lewis, M. A., & Neighbors, C. (2010). Effectiveness of social norms media marketing in reducing drinking and driving: A statewide campaign. *Addictive Behaviors*, 35(10), 866–874. doi:10.1016/j.addbeh.2010.05.004
- Piane, G., & Safer, A. (2008). Drinking behaviors, expectancies and perceived social norms among diverse college women. *Journal of Alcohol & Drug Education*, 52(1), 67–79.
- Prewitt-Freilino, J. L., & Bosson, J. K. (2008). Defending the self against identity misclassification. *Self and Identity*, 7(2), 168–183. doi:10.1080/17405620701330706
- Reed, M. B., & Aspinwall, L. G. (1998). Self-affirmation reduces biased processing of health-risk information. *Motivation and Emotion*, 22(2), 99–133.  
doi:10.1023/A:1021463221281

1  
2  
3 Reno, R. R., Cialdini, R. B., & Kallgren, C. A. (1993). The transsituational influence of social  
4 norms. *Journal of Personality and Social Psychology*, *64*(1), 104–112.  
5  
6  
7 doi:10.1037/0022-3514.64.1.104  
8

9  
10 Richard, J.-B., Spilka, S., & Beck, F. (2013). *Les consommations de boissons alcoolisées*  
11  
12 *parmi les 15-30 ans*. Paris.

13  
14  
15  
16 Rimal, R. N., & Real, K. (2005). How behaviors are influenced by perceived norms: A test of  
17  
18 the theory of normative social behavior. *Communication Research*, *32*(3), 389–414.  
19  
20  
21 doi:10.1177/0093650205275385  
22

23  
24 Schultz, W. P., Nolan, J. M., Cialdini, R. B., Goldstein, N. J., & Griskevicius, V. (2007). The  
25  
26 constructive, destructive, and reconstructive power of social norms. *Psychological*  
27  
28 *Science*, *18*(5), 429–34. doi:10.1111/j.1467-9280.2007.01917.x  
29  
30

31  
32 Scott, J. L., Brown, A. C., Phair, J. K., Westland, J. N., & Schüz, B. (2013). Self-affirmation,  
33  
34 intentions and alcohol consumption in students: A randomized exploratory trial. *Alcohol*  
35  
36 *and Alcoholism*, *48*(4), 458–63. doi:10.1093/alcalc/agt027  
37  
38

39  
40 Shapiro, J. R., Williams, A. M., & Hambarchyan, M. (2013). Are all interventions created  
41  
42 equal? A multi-threat approach to tailoring stereotype threat interventions. *Journal of*  
43  
44 *Personality and Social Psychology*, *104*(2), 277–288. doi:10.1037/a0030461  
45  
46

47  
48 Sherman, D. K. (2013). Self-affirmation: Understanding the effects. *Social and Personality*  
49  
50 *Psychology Compass*, *7*(11), 834–845.  
51

52  
53 Sherman, D. K., & Cohen, G. L. (2002). Accepting threatening information: Self-affirmation  
54  
55 and the reduction of defensive biases. *Current Directions in Psychological Science*,  
56  
57





## SELF-AFFIRMATION AND ALCOHOL

54

- 1  
2  
3 Sherman, D. K., & Cohen, G. L. (2006). The psychology of self-defense: Self-affirmation  
4 theory. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 38, pp.  
5 183–242). San Diego, CA: Academic Press. doi:10.1016/S0065-2601(06)38004-5  
6  
7  
8  
9  
10  
11 Sherman, D. K., Cohen, G. L., Nelson, L. D., Nussbaum, D. A., Bunyan, D. P., & Garcia, J.  
12 (2009). Affirmed yet unaware: Exploring the role of awareness in the process of self-  
13 affirmation. *Journal of Personality and Social Psychology*, *97*(5), 745–764.  
14  
15  
16  
17  
18  
19  
20  
21 Sherman, D. K., & Hartson, K. A. (2011). Reconciling self-protection with self-improvement:  
22 Self-affirmation theory. In M. D. Alicke & C. Sedikides (Eds.), *The handbook of self-  
23 enhancement and self-protection* (pp. 128–151). New York: Guilford Press.  
24  
25  
26  
27  
28 Sherman, D. K., Kinias, Z., Major, B., Kim, H. S., & Prenovost, M. (2007). The group as a  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
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47  
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50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60
- resource: Reducing biased attributions for group success and failure via group  
affirmation. *Personality & Social Psychology Bulletin*, *33*(8), 1100–1112.  
doi:10.1177/0146167207303027
- threaten the self? Increasing the acceptance of threatening health messages via self-  
affirmation. *Personality and Social Psychology Bulletin*, *26*(9), 1046–1058.  
doi:10.1177/01461672002611003
- self-affirmation in de-escalation of commitment. *Organizational Behavior and Human  
Decision Processes*, *107*(1), 1–14. doi:10.1016/j.obhdp.2007.12.004

1  
2  
3 Smith, J. R., Hogg, M. A., Martin, R., & Terry, D. J. (2007). Uncertainty and the influence of  
4  
5 group norms in the attitude-behaviour relationship. *The British Journal of Social*  
6  
7 *Psychology*, 46(4), 769–92. doi:10.1348/014466606X164439  
8  
9

10  
11 Spencer, S. J., Fein, S., & Lomore, C. D. (2001). Maintaining one's self-image vis- à-vis  
12  
13 others: The role of self-affirmation in the social evaluation of the self. *Motivation and*  
14  
15 *Emotion*, 25(1), 41–65.  
16  
17

18  
19 Spilka, S., Le Nézet, O., & Tovar, M.-L. (2012). Les drogues à 17 ans : Premiers résultats de  
20  
21 l'enquête ESCAPAD 2011. *Tendances*, 79(2).  
22  
23

24  
25 Steele, C. M. (1999). The psychology of self-affirmation: Sustaining the integrity of the self.  
26  
27 In R. F. Baumeister (Ed.), *The self in social psychology. Key reading in social*  
28  
29 *psychology* (pp. 372–390). Philadelphia, PA: Psychology Press.  
30  
31

32  
33 Tajfel, H., & Turner, J. C. (1979). An integrative theory of intergroup conflict. In W. G.  
34  
35 Austin & S. Worchel (Eds.), *The social psychology of intergroup relations* (pp. 33–48).  
36  
37 Monterey, CA: Brooks/Cole.  
38  
39

40  
41 Tajfel, H., & Turner, J. C. (1986). The social identity theory of intergroup behavior. In S.  
42  
43 Worchel & W. Austin (Eds.), *Psychology of intergroup relations* (2nd ed., pp. 7–24).  
44  
45 Chicago, IL: Nelson-Hall.  
46  
47

48  
49 Townshend, J. M., & Duka, T. (2002). Patterns of alcohol drinking in a population of young  
50  
51 social drinkers : A comparison of questionnaire and diary measures. *Alcohol and*  
52  
53 *Alcoholism*, 37(2), 187–192. doi:10.1093/alcalc/37.2.187  
54  
55

56  
57 Turner, J. C., Hogg, M. A., Oakes, P. J., Reicher, S. D., & Wetherell, M. S. (1987).  
58  
59 *Rediscovering the social group: A self-categorization theory*. Oxford, UK: Blackwell.  
60

## SELF-AFFIRMATION AND ALCOHOL

56

1  
2  
3 Van Koningsbruggen, G. M., Das, E., & Roskos-Ewoldsen, D. R. (2009). How self-  
4  
5 affirmation reduces defensive processing of threatening health information: Evidence at  
6  
7 the implicit level. *Health Psychology, 28*(5), 563–568. doi:10.1037/a0015610  
8

9  
10  
11 Wakslak, C. J., & Trope, Y. (2009). Cognitive consequences of affirming the self: The  
12  
13 relationship between self-affirmation and object construal. *Journal of Experimental*  
14  
15 *Social Psychology, 45*(4), 927–932. doi:10.1016/j.jesp.2009.05.002  
16

17  
18  
19 Wechsler, H., Nelson, T. F., Lee, J. E., Seibring, M., Lewis, C., & Keeling, R. P. (2003).  
20  
21 Perception and reality : A national evaluation of social norms marketing interventions to  
22  
23 reduce college students ' heavy alcohol use. *Journal of Studies on Alcohol, 64*(4), 484–  
24  
25 494.  
26

27  
28  
29 Wellen, J. M., & Neale, M. (2006). Deviance, self-typicality, and group cohesion. The  
30  
31 corrosive effects of the bad apples on the barrel. *Small Group Research, 37*(2), 165–186.  
32  
33 doi:10.1177/1046-496406286420  
34  
35  
36  
37  
38  
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## Footnotes

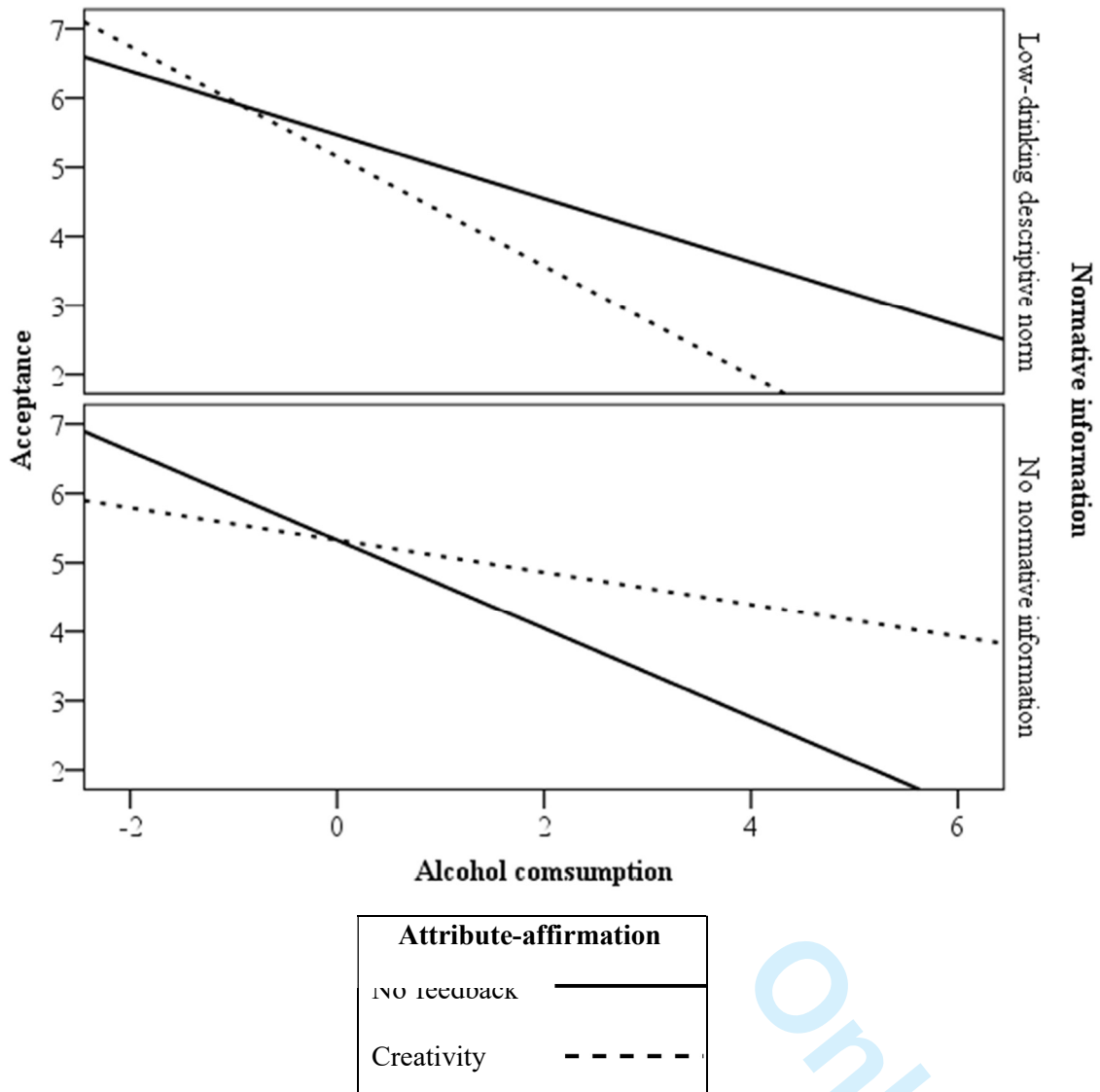
<sup>1</sup> According to the French Observatory of Drugs and Addictions (Spilka, Le Nézet, & Tovar, 2012), binge drinking has been increasing among French 17-year-olds (45.8% in 2005, 48.7% in 2008 and 53.2% in 2011). Furthermore, unlike other countries (e.g., the UK), binge drinking in France affects more men (59.7%) than women (46.5%). In another recent national survey among 20- to 25-year-olds (Richard et al., 2013), women reported experiencing less drunkenness (33.5%) during the previous year than men (57.4%).

SELF-AFFIRMATION AND ALCOHOL

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Figure 1

Acceptance as a function of normative information and attribute affirmation (experiment 1).

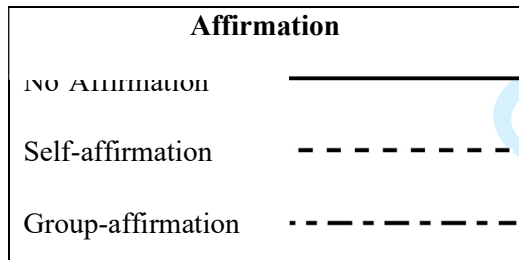
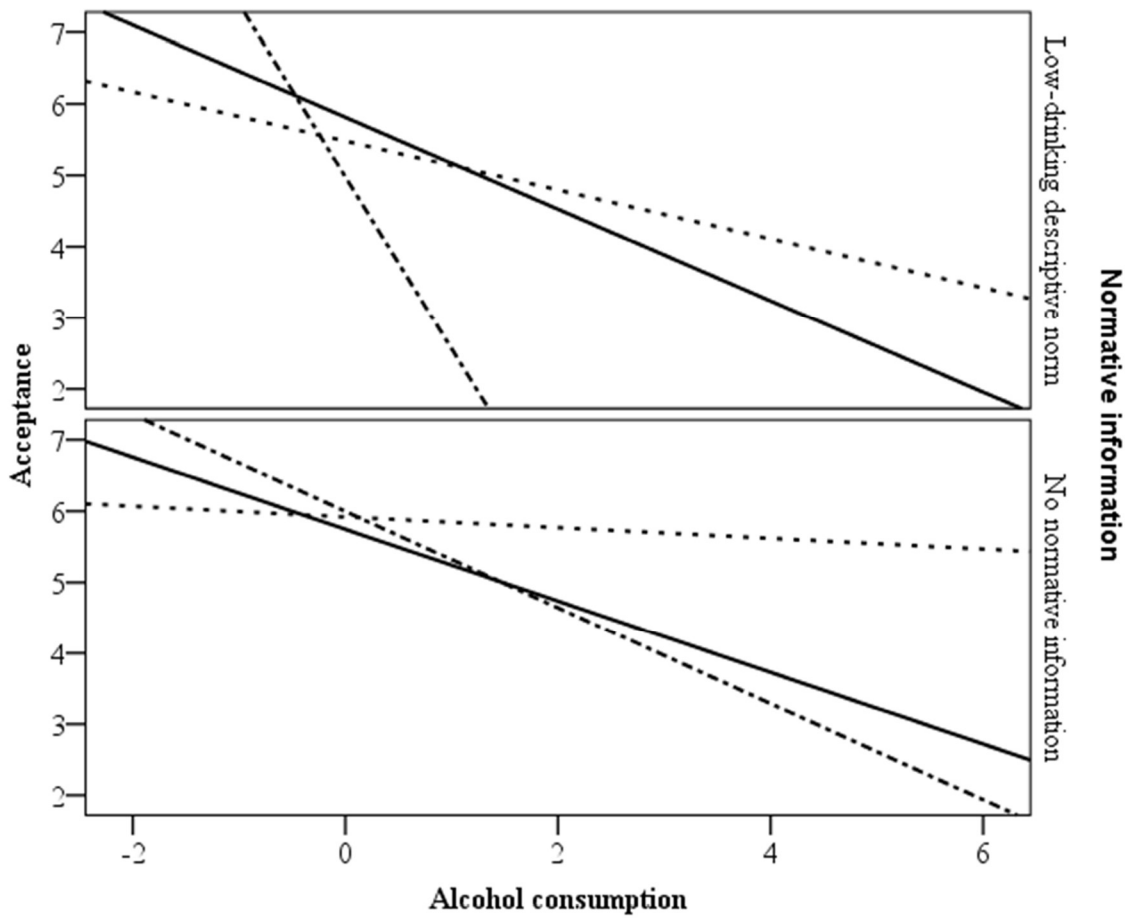


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SELF-AFFIRMATION AND ALCOHOL

Figure 2

Acceptance as a function of normative information and value affirmation (experiment 2)



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## SELF-AFFIRMATION AND ALCOHOL

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Figure 3

Mediation of the self-clarity concept between the alcohol consumption and socialization  
(Experiment 3).

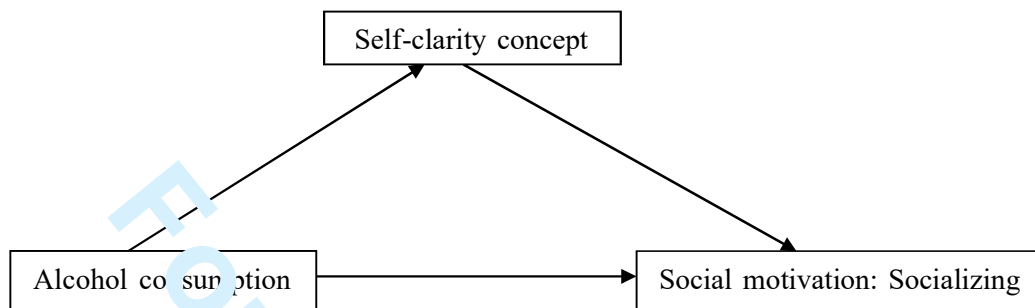


Table 1  
 Hierarchical regression of drinking behavior on acceptance as a function of normative feedback and self-affirmation.

		<i>Model without subjective norm as covariate</i>			<i>Model with subjective norm as covariate</i>		
Independent variables and interactions terms		$\beta$	<i>t</i>	<i>p</i>	$\beta$	<i>t</i>	<i>p</i>
<b>Step 1</b>	Constant		4.05	< .001		5,44	< .001
	Subjective norm	-	-	-	-.29	-3.84	.000
	Sex	-.19	-2.33	.021	-,16	-2,10	,038
	Age	.11	1.34	.183	,09	1,18	,242
	Lag	.07	.84	.401	,06	,76	,446
<b>Step 2</b>	AC	-.34	-4.58	< .001	-.28	-3.59	< .001
	SA	-.08	-1.14	.257	-.08	-1.16	.248
	NI	.01	.16	.870	.022	.31	.756
<b>Step 3</b>	SA×NI	.08	1.03	.304	.07	1.03	.304
	AC×SA	.02	.23	.818	.01	.17	.866
	AC×NI	-.20	-2.76	.007	-.18	-2.51	.013
<b>Step 4</b>	AC×NI×SA	-.15	-2.00	.051	-.12	-1.51	.134

AC = Alcohol consumption ; SA = Self-affirmation; NI = Normative Information



Table 2  
 Hierarchical regression of subjective norm on acceptance as a function of normative feedback and self-affirmation.

		<i>Model without subjective norm as covariate</i>			<i>Model with subjective norm as covariate</i>		
Independent variables and interactions terms		$\beta$	<i>t</i>	<i>p</i>	$\beta$	<i>t</i>	<i>p</i>
<b>Step 1</b>	Constant		4.05	< .001		4.42	< .001
	AC	-	-	-	-.33	-4.51	< .001
	Sex	-.19	-2.33	.021	-.13	-1.72	.088
	Age	.11	1.34	.183	.09	1.15	.251
	Lag	.07	.84	.401	.10	1.41	.162
<b>Step 2</b>	Subjective norm (SN)	-.29	-3.85	.000	-.20	-2.66	.009
	Self-affirmation (SA)	-.06	-.84	.400	-.08	-1.16	.248
	NI	.02	.30	.768	.02	.31	.756
<b>Step 3</b>	SA $\times$ NI	.07	.95	.343	.08	1.08	.280
	SN $\times$ NI	-.09	-1.25	.214	-.08	-1.12	.265
	SN $\times$ SA	.18	2.41	.017	.15	2.03	.045
<b>Step 4</b>	SN $\times$ NI $\times$ SA	-.07	-.98	.330	-.04	-.52	.601

AC = Alcohol consumption ; SN = Subjective norm ; SA = Self-affirmation; NI = Normative Information

## Appendix 1

Two studies (one from California and one from Belgium) of young volunteers show that binge drinking causes brain damage. The Belgian researchers from the Catholic University of Louvain and the Free University of Brussels found that the students who participated actively in student night life (drinking at a party at least once per week) for nine months showed a reduction in brain activity.

The American study suggests that binge drinking causes irreversible damage to the white matter of the brain, which is responsible for the transmission of information in intellectual functioning (the study showed that the links were altered between neurons in different parts of the brain and this explained the reduction in brain activity). The lesions in the white matter, found in young people who had experienced binge drinking several times, were the same type as found in alcoholics.

These results suggest that occasional binge drinking could have the same consequences on the brain as frequent drinking.