

Positive Effects of a Social Norm Marketing Campaign on Reducing Perception Bias and Alcohol Abuse among College Students

Autoria

Kenny Basso - bassokenny@gmail.com

Curso de Mestr Acadêmico em Admin/Prog de Pós-Grad em Admin/IMED - Escola de Administração da Faculdade Meridional

Vitor Francisco Dalla Corte - vitordallacorte@gmail.com

Curso de Mestr Acadêmico em Admin/Prog de Pós-Grad em Admin/IMED - Escola de Administração da Faculdade Meridional

Carlos Costa - carlos.costa1@gmail.com

Curso de Mestr Acadêmico em Admin/Prog de Pós-Grad em Admin/IMED - Escola de Administração da Faculdade Meridional

Bettina Grajcer - bettina@lynx.ag

Agência Lynx de mkt de causas

João Vicente Rosa de Souza - joaovsouza@gmail.com

Curso de Administração/IMED - Escola de Administração da Faculdade Meridional

Keitiline Ramos Viacava - keitiline.viacava@ufrgs.br

Curso de Mestr Acadêmico em Admin/Prog de Pós-Grad em Admin/IMED - Escola de Administração da Faculdade Meridional

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Resumo

Excessive alcohol consumption among college students is a major health concern. Students's efforts toward adjusting to social norms through perceptive (i.e., descriptive) and acceptive (i.e., injunctive) behaviors may further contribute to the initiation and escalation of drinking amongst them. Seeking to mitigate these effects, the present study tested the effectiveness of a four-months on-campus social norm marketing (SNM) campaign targeted towards reducing alcohol abuse. Pre- and post-campaign alcohol consumption and social norms data, drawn from self-report questionnaires filled out by Brazilian college students, showed a lower perception bias regarding peer drinking patterns and a significant reduction

in both the frequency and the quantity of alcohol consumed by students following the completion of the SNM campaign. Moreover, both descriptive and injunctive perceived norms were shown to predict drinking, although independency was not confirmed.

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Abstract

Excessive alcohol consumption among college students is a major health concern. Students' efforts toward adjusting to social norms through perceptive (*i.e.*, descriptive) and acceptive (*i.e.*, injunctive) behaviors may further contribute to the initiation and escalation of drinking amongst them. Seeking to mitigate these effects, the present study tested the effectiveness of a four-months on-campus social norm marketing (SNM) campaign targeted towards reducing alcohol abuse. Pre- and post-campaign alcohol consumption and social norms data, drawn from self-report questionnaires filled out by Brazilian college students, showed a lower perception bias regarding peer drinking patterns and a significant reduction in both the frequency and the quantity of alcohol consumed by students following the completion of the SNM campaign. Moreover, both descriptive and injunctive perceived norms were shown to predict drinking, although independency was not confirmed.

Keywords: alcohol, college students, social norms, marketing, perception bias

Introduction

Alcohol misuse and abuse among college students remains a public health concern, and perceived peer use (or social norms) may contribute to drinking patterns by increasing the acceptability of alcohol and making it more commonplace (Borsari & Carey, 2001; Clapp & McDonnell, 2000; Larimer, Turner, Mallett, & Geisner, 2004; Thompson & Romo, 2016). Social norms marketing (SNM) campaigns are designed to reduce drinking frequency and quantity as well as other alcohol-related problems (e.g., drinking and driving, fights, and unprotected sex) by altering students' perception biases: an automatic tendency to overestimate peer drinking behaviors (Agostinelli, Brown, & Miller, 1995; DeJong et al., 2006; Lewis & Neighbors, 2006).

According to planned behavior theory (Ajzen, 1991; Godin & Kok, 1996), SNM campaigns constitute preventive health strategies built on a construct of social norms (Mattern & Neighbors, 2004; Miller & Prentice, 2016). These campaigns assume that ordinary codes of behavior are considered normative and that individuals, particularly the young, tend to follow and maintain these codes for social acceptance. Alcohol abuse is an example of such codes adopted by students to sustain social norms in college. Besides sparking alcohol consumption, students' perceptual biases of peer behaviors can lead to an escalation of drinking (Ecker, Cohen, & Buckner, 2017). Accordingly, SNM campaigns on college campuses focus on mitigating the effects of social norms by reducing or eliminating perceptual biases about alcohol use (Fitzpatrick, Martinez, Polidan, & Angelis, 2016).

SNM campaigns can employ different approaches: curriculum infusion, service learning, alcohol education, or non-normative feedback (Flynn & Carter, 2016; Moreira, Smith, & Foxcroft, 2009). By not targeting perception biases, the first three strategies rely on awareness processes that have seldom led to behavioral change (Marteau, Hollands, & Fletcher, 2012). In contrast, more effective non-normative feedback is based on collecting and then disseminating information to correct misconceptions about drinking, and its purpose is to inform students that their peers do not drink as much alcohol as they are believed to consume. When different forms of non-normative feedback were analyzed (*i.e.*, web/computer, mailed, individual and group face-to-face), college students' social norms and alcohol consumption were most significantly altered by web-based and individual face-to-face feedback (Moreira et al., 2009).

The effectiveness of SNM campaigns in reducing perception bias and drinking has been previously reported in surveys administrated to all students in a population (Gomberg, Schneider, & DeJong, 2001), to a heterogeneous sample (Turner, Perkins, & Bauerle, 2008), or to a certain cohort such as athletes (Perkins & Craig, 2006) or members of a fraternity or sorority (Carter & Kahnweiler, 2000; Sher, Bartholow, & Nanda, 2001). The data in these studies were gathered transversally (Agostinelli et al., 1995), or longitudinally (Turner et al., 2008), and even beyond college years, allowing testing for both short- and long-term effects (Sher et al., 2001).

Although cumulative findings support the positive impact of SNM campaigns, these results are not free from criticism, as some studies have failed to replicate the effects (Carter & Kahnweiler, 2000; DeJong et al., 2006; Stockings et al., 2016; Wechsler et al., 2003; Werch et al., 2000). Three possible explanations for negative findings in SNM campaigns designed to reduce student drinking include: (a) lack of student trust in the statistics used, (b) lower campaign credibility due to high levels of alcohol use on campus, and (c) a lack of understanding of the campaign's purpose (Thombs, Dotterer, Olds, Sharp, & Raub, 2004). Consequently, there should be a further drive toward guaranteeing message credibility and understanding.

Perception biases relating to drinking norms are usually measured in terms of perceived prevalence (i.e., descriptive norms) and approval to use or pressure to conform, i.e., injunctive norms (Lapinski & Rimal, 2005; Rimal & Lapinski, 2015). Although both types of norms are considered distinct and interchangeable predictors of drinking (Krieger et al., 2016; Lee, Geisner, Lewis, Neighbors, & Larimer, 2007; Neighbors, Lee, Lewis, Fossos, & Larimer, 2007), they show common influences regarding social motives (Choi, Park, & Noh, 2016; Halim, Hasking, & Allen, 2012). Moreover, while injunctive norms are highly influenced by proximal groups, such as close friends and parents, the influence of descriptive norms seems to be similar for both proximal and distal groups (LaBrie, Hummer, Neighbors, & Larimer, 2010; Massengale, Ma, Rulison, Milroy, & Wyrick, 2017; Neighbors et al., 2008).

Overall, the effects of SNM campaigns on reducing perception bias were observed across different levels of individual drinking, gender, race, reference group, question specificity, years in college, and campus size (Alfonso, 2015; Baer, Stacy, & Larimer, 1991; Borsari & Carey, 2003; LaBrie et al., 2010). However, gender may play a role in how people respond to these interventions (Elek, Miller-Day, & Hecht, 2006).

When the effects of both descriptive and injunctive norms were tested on pre-party drinking, descriptive social norms were correlated with alcohol abuse in women and injunctive norms in men (Rutledge, McCarthy, & Lendyak, 2014). Masculine stereotypes and the perception of drinking—descriptive norms among males—were also found to encourage alcohol use (Mahalik, Burns, & Syzdek, 2007). Testing or controlling for the effects of gender could therefore be undertaken in similar studies (Arterberry, Smith, Martens, Cadigan, & Murphy, 2014).

Overall, peer drinking behaviors have a strong influence on the initiation and escalation of alcohol use among college students, and SNM campaigns have commonly been applied with the aim of reducing such impacts. The aim of this study was to test the effectiveness of an SNM campaign in reducing alcohol use among college students. We hypothesized that repeated exposure to an SNM campaign portraying authentic drinking patterns among college students would: (H1) lower misconceptions regarding peer drinking patterns by correcting potential perception bias and (H2) reduce both the frequency and amount of alcohol consumed by students. Additionally, we expected that for (H3), both descriptive and injunctive perceived norms would independently predict drinking but that the (H4) effect of injunctive perceived norms would better predict drinking within close groups (i.e., friends or students pursuing the same major).

Methods

Design and participants

To test the abovementioned hypotheses, we used a field experiment administered through a pre- and post-campaign testing design (T0 and T1). We introduced a manipulation of the social norms between T0 and T1. The participants comprised college students of a university in the southernmost part of Brazil. The sample size consisted of 1,129 students (T0, 66.6% female, mean age = 22.2 years old) and 1,019 students (T1, 66.3% female, same average age as T0). There was no gender ($\chi^2(1) = 2,081$; $p = .149$) or age ($F(1, 2019) = .001$; $p = .969$) difference between the pre- and post-test measurements.

Procedures

An initial assessment was made of the students' frequency and quantity of alcohol consumption (T0), their perception about peer drinking patterns, as well as descriptive and injunctive perceived norms. To do so, all the students of the university were invited to participate in the research and to answer a survey in the research lab. Around 75% of them accepted the invitation and answered the survey. In August 2016, prior to the SNM campaign, the student respondents were allocated a single station in the research lab to answer the survey. To control for demand effects, we took the measurements over a short period (two weeks), thus reducing the possibility of students talking or speculating about the research hypotheses.

After T0, we applied an SNM campaign based on the findings of the first measurements. We developed statements to guide the students toward modifying their drinking behavior. We used statements such as "In the last month, 83% of this university's students have not consumed alcohol on more than 3 occasions; 82% of this university's students do not engage in fights or aggressive behavior after drinking; 57% of this university's students have opted to take a ride home after drinking alcohol; in the last month, 57% of this university's students have not gotten drunk; in the last year, 72% of this university's students have had sexual relations after drinking alcohol and did not use condoms."

To develop the media for the SNM campaign, each statement was included in a poster, sticker, totem marketing or was sent via mobile text messaging (Figures 1a, 1b, and 2). Further examples can be viewed in the complementary materials. All media material was installed within the university in areas frequented by students (e.g., as classrooms, bathrooms, stairs, and halls). The SNM campaign continued for three months (September, October, and November of 2016).

Figure 1. Examples of a poster displayed on campus (A) and the text message sent to students (B)

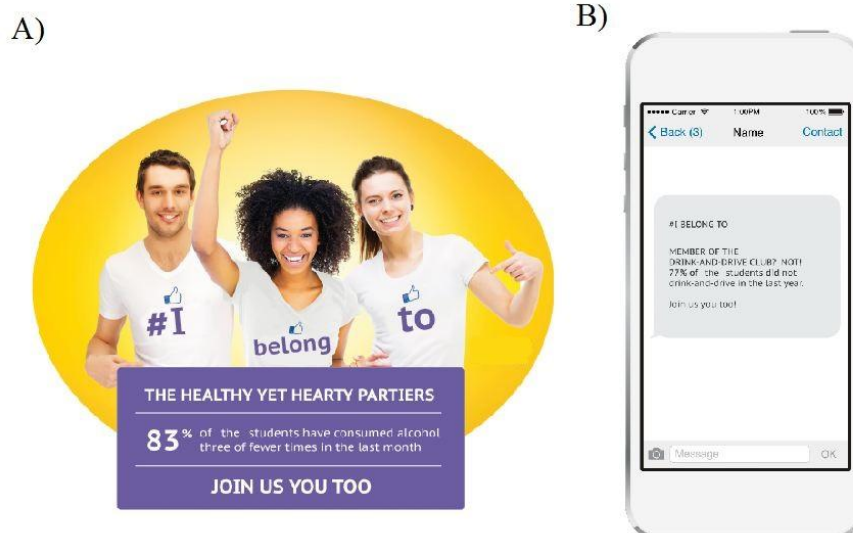
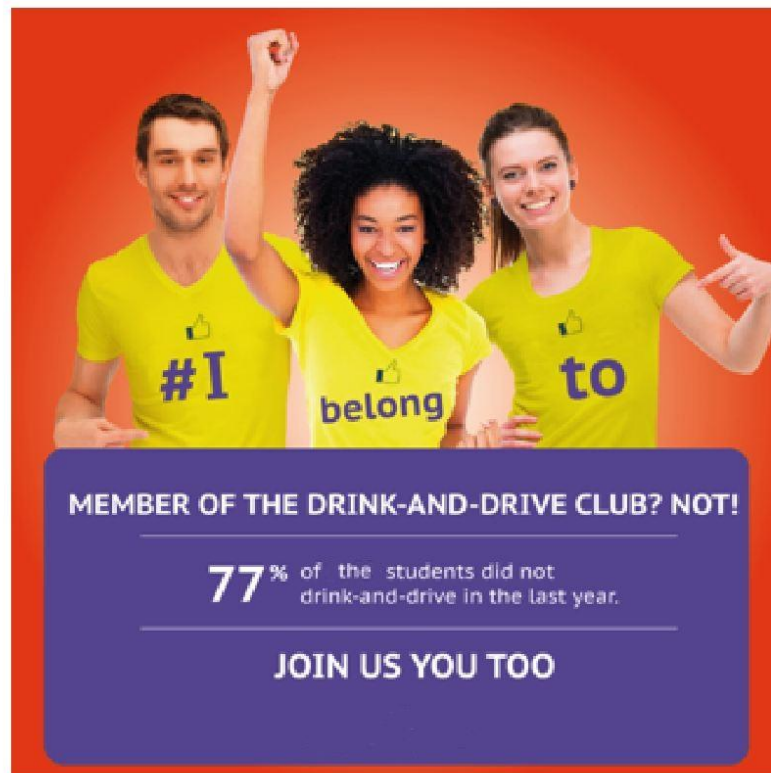


Figure 2. Example of poster displayed on campus



Following the students' exposure to the SNM campaign, post-test measurements (T1) were taken in late November 2016. We applied the same procedures used for T0. It is important to highlight that the respondents' anonymity was assured for both the T0 and T1 assessments.

Measures

To assure the visibility of the SNM campaign, we asked participants whether they had noticed the campaign's posters, stickers, totems, and other media around the university. To assess their perceptions about peer drinking patterns, we asked them about the quantity of alcohol (doses) consumed by other students in a single event (e.g., a party, one night out).

A measure of self-perception was developed through two procedures. First, we asked the participants about the quantity of alcohol (doses) they typically consumed in a single event. Second, for a more validated measure of alcohol consumption, we applied the Alcohol Use Disorders Identification Test (AUDIT). In concert with previous studies (Lapinski & Rimal, 2005; Rimal & Lapinski, 2015), descriptive norms were assessed with questions relating to the perceived prevalence of drinking patterns among college students, while injunctive norms were measured with questions associated with approval to use or pressure to conform to these patterns. The participants' responses to each dimension were summed, resulting in separate scores for descriptive and injunction norms. The scores were then normalized for analysis. Finally, variables known to have a high correlation with drinking behavior were controlled, e.g., if the participant usually went to bars and/or attended parties.

Findings

Most of the participants (80.2%) had noticed the SNM campaign. Although 19.8% reported not having seen any of the campaign materials, we choose to keep them in the sample, since the findings with or without these cases were not significantly different.

Prior to the SNM campaign (H1), the participants indicated that other students drank on average 12.1 doses during a single event, whereas after the SNM campaign, this perception

regarding peer drinking patterns was reduced to 10.7 doses per event [$F(1, 2019) = 4.433$; $p < .05$]. Accordingly, our findings indicate that the SNM campaign lowered perception bias regarding peer drinking patterns, thereby supporting H1.

The pre-campaign participants reported an average person's consumption of 5.9 doses per event, whereas after the SNM campaign, the number of reported doses was reduced to 4.8 [$H2$, ($F(1, 2023) = 4.567$; $p < 0.05$]. The difference between T0 and T1 was 17.7%, indicating a marked reduction in the declared consumption of alcohol in a single event. Moreover, the score of the AUDIT at T0 was 5.81, while after the SNM campaign, the score of the same test dropped to 5.43 [$F(1, 2034) = 5.073$; $p < .05$]. The difference in the AUDIT indicates a reduction in the frequency and amount of alcohol consumption linked to harmful behaviors. The reduction in both the amounts consumed and the frequency scores supports H2.

Both the injunctive ($\beta = 0.052$; $t = 2.281$; $p < 0.05$) and descriptive norms ($\beta = 0.083$; $t = 3.680$; $p < 0.001$) had positive effects on the participants' alcohol consumption. Specifically, the descriptive norms presented a stronger effect than the injunctive norms in explaining the quantity of alcohol consumed by the participants in a single event.

Descriptive norms had a strong positive effect ($\beta = 0.208$; $t = 9.302$; $p < 0.001$) on the participants' perception of the quantity of alcohol consumed by other students, whereas injunctive norms had a weaker negative effect ($\beta = -0.053$; $t = -2.387$; $p < 0.05$). The greater the presence of descriptive norms, and the lesser the presence of injunctive norms, the greater was the perceived quantity of alcohol consumed by other students.

Both the effects of descriptive and injunctive norms significantly predicted alcohol consumption behavior at a single event. Although independency was not confirmed, this result partially supports H3.

Discussion

The purpose of this study was to test the effectiveness of an SNM campaign in reducing alcohol abuse. As expected, the results indicated that the SNM campaign was effective at reducing perception bias regarding peer drinking (H1) as well as diminishing the frequency and amount of alcohol consumed by students (H2). Unsurprisingly, the two forms of perceived norms (descriptive and injunctive) significantly predicted drinking (H3). However, the independency found in previous studies was not statistically supported in our study (Lee et al., 2007; Neighbors et al., 2008). One possible explanation could be that different scales were employed for these constructs, making it more difficult to establish associations (Krieger et al., 2016). Our forth hypothesis was not confirmed, as we did not find evidence of injunctive norms being stronger at predicting drinking within close groups.

Overall, our findings show that the use of social norms can reduce alcohol consumption among college students. These results are consistent with the construct of social norms (Mattern & Neighbors, 2004; Miller & Prentice, 2016) and adds to the existing literature that suggests that alcohol abuse among students is an example of the tendency to preserve the drinking code in order to sustain social norms in college. Specifically, our findings concur with those of previous studies, showing the positive outcomes of an SNM campaign in terms of college students' alcohol abuse (Gomberg et al., 2001; Hagman, Clifford, & Noel, 2007; Moreira et al., 2009; Turner et al., 2008), thereby contradicting studies to the contrary (Stockings et al., 2016; Thombs et al., 2004; Wechsler et al., 2003). One methodologically positive point of this study that could have contributed to this encouraging result was the production and display of high-quality marketing materials for the SNM campaign. The visual content adopted were salient and portrayed young adult individuals with similar physical attributes to those of the target population.

Some study limitations can be noted, that is, only two data points were methodology adopted in the data collection, which prevented us from analyzing the SNM campaign's

possible long-term effects. This limitation, however, opens up the possibility for testing enduring effects. Another limitation is that our data were collected through self-administrated questionnaires, which could have contained self-report bias due to the nature of the assessment and responses. Questionnaire instruments are a well-accepted method to access the effects of explicit perceived norms. We can speculate, however, that exposure to SNM campaigns might also have implicit (non-conscious) impacts, which is also an interesting area for future research.

To conclude, we highlight that this study concurs with existing findings depicting the positive and promising effects of SNM campaigns on the college environment. We believe that well-established theories for understanding consumer behavior, such as the theory of planned behavior (Ajzen, 1991; Godin & Kok, 1996) applied through SNM campaigns, are relevant in the prevention of alcohol consumption among college students by correcting misconceptions about drinking within social norms.

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