

Questioning the Social Norms Approach for Alcohol Reduction in First-Year Undergraduate Students—A Canadian Perspective

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ABSTRACT

The social norms approach to changing excessive drinking behaviour is predicated upon findings that overestimations of peer drinking predict one's own drinking behaviour. Prior studies have yet to examine whether such social norms effects pertain equally to both genders. First-year students from a Canadian university ($N = 1,155$; 696 males, 459 females) were assessed for the relationship between misperceived drinking norms and hazardous drinking using the Alcohol Use Disorder Identification Test-Consumption scale (AUDIT-C). A significant positive relationship between the overestimated drinking frequency norm and hazardous drinking was determined for female students, where the odds of hazardous drinking increased

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by 1.92 (95% CI: 1.32–2.79) when the norm of other female students was overestimated. A non-significant association was found for male students, where the odds of hazardous drinking were unrelated to overestimation of the drinking norm of other male students. The null association for male students highlights a potential problem when using social norms interventions for alcohol reduction for males in the university context. Implications of these results for the utilization of the social norms approach to alcohol reduction are discussed.

Keywords: hazardous drinking, undergraduate students, norm misperceptions, social norms

RÉSUMÉ

L'approche des normes sociales utilisée pour modifier le comportement en matière de consommation excessive d'alcool prend appui sur le constat selon lequel une surestimation de la consommation d'alcool par les pairs permet de prédire son propre comportement en matière de consommation de boissons alcoolisées. À ce jour, les études réalisées n'ont jamais cherché à évaluer si les effets de ces normes sociales s'appliquaient également aux deux sexes. Des étudiants de première année d'une université canadienne (N = 1,155; 696 hommes, 459 femmes) ont été sondés pour évaluer la relation entre les normes de consommation erronées et la consommation dangereuse d'alcool à l'aide du test AUDIT-C (Alcohol Use Disorder Identification Test-Consumption). Une relation positive significative entre la fréquence surestimée de consommation et la consommation dangereuse d'alcool a été établie pour les étudiantes de sexe féminin, la probabilité de consommation dangereuse d'alcool augmentant de 1,92 (I de C à 95 % : 1,32-2,79) lorsqu'il y avait une surestimation de la norme pour les autres étudiants de sexe féminin. Une association non significative a été établie pour les étudiants de sexe masculin, la probabilité de consommation dangereuse d'alcool n'étant aucunement liée à la surestimation de la norme de consommation d'alcool des autres étudiants de sexe masculin. L'association nulle pour les étudiants de sexe masculin met en lumière un problème que peut poser l'application de normes sociales d'intervention en vue de réduire la consommation d'alcool chez les hommes dans le contexte universitaire. Le présent article aborde les implications possibles de ces résultats sur la mise en œuvre de l'approche des normes sociales pour réduire la consommation d'alcool.

Mots clés : consommation dangereuse d'alcool, étudiants de premier cycle, perception erronée des normes, normes sociales

Social norms are shared and enforced attitudes that specify what to do and what not to do in a given situation. Their enforcement occurs informally, through social sanctions and social rewards within groups and communities. The incentive to follow a social norm is the approval of one's friends and the penalty is disapproval and rejection. Norms can be powerful agents of control. Social norms explain why members of a group behave in similar ways (such as through peer pressure) even when individual preferences may differ. Research has found that peers are typically the strongest influence on late adolescents and young adults, especially with regard to alcohol use. Peer influence can arise directly or indirectly and is of particular importance on college campuses where students may lack frequent contact with parents, siblings, and members of other reference groups. Peer pressure is particularly pronounced for young men (Perkins, 2002).

Early research focused on the direct influence of peers that occurs when they persuade others to consume alcohol (Borsari & Carey, 2001). As time progressed, researchers delved more deeply into the influence of peers and began to uncover more subtle, indirect influences in the form of modelling (the imitation of another's behaviour) and social norms. Some of the first studies on norms focused on the role that affiliation with

various religious organizations and cultures played in the consumption of alcohol (Maddox, 1970). A shift in the study of drinking norms occurred when it became apparent that the perceptions of the drinking norm of fellow undergraduate students (specifically misperceptions in the form of overestimates) were predictive of students' own drinking behaviour. This led to the development of the Social Norms Approach (Perkins & Berkowitz, 1986). This approach relates to norm misperceptions and describes situations in which individuals incorrectly perceive the attitudes and/or behaviours of peers and other community members to be different from their own (Berkowitz, 2004). Perkins and Berkowitz proposed that in order to change behaviour, it is important to study the environment and interpersonal influences rather than just the individual. When applied to alcohol reduction interventions, social norms interventions are designed to provide accurate information about drinking norms for a group (e.g., first-year university students) and in turn dissuade members of the group to drink more to coincide with a misperceived (overestimated) norm.

Recently, much attention has been directed to hazardous drinking among post-secondary students, and targeting alcohol reduction programs to this group has become an important issue (Stuart et al., in press). Hazardous (or risky) drinking is defined by the World Health Organization as a pattern of alcohol consumption that increases the risk of harmful consequences for the user or others (Babor et al., 2001).

Research has demonstrated that college students consistently overestimate both the amount of alcohol that their peers consume as well as the prevalence of heavy drinkers on campus (Arbour-Nicitopoulos, Kwan, Lowe, Taman, & Faulkner, 2010; Kypri & Langley, 2003; Perkins & Wechsler, 1996; Perkins, Haines, & Rice, 2005; Perkins, 2007; Wardell & Read, 2013). Such misperceptions are thought to motivate people to drink heavily in order to live up to the perceived social norm thereby placing them at greater risk of experiencing alcohol-related, problematic behaviours. The main mechanism of action underlying social norms-based interventions is that misperceptions can be modified with reference to campus-specific normative drinking data collected via survey self-report (Hagman, Noel, & Clifford, 2007).

Over the past two decades, social norms interventions on campuses have proliferated and social-norms marketing campaigns have emerged as a primary tool for changing drinking behaviours. The aim is to reduce hazardous drinking by correcting students' misperceptions regarding the prevalence of hazardous drinking among their peers. In 2002, for example, the Harvard School of Public Health surveyed colleges and universities and found that almost half had adopted a social marketing approach to combat student drinking (Wechsler et al., 2003). These social marketing approaches provide information about the actual college specific drinking norms using various methods of communication including flyers and posters.

Drinking norms can be classified as descriptive or injunctive. Injunctive norms reflect the perceptions of others' approval of drinking, while descriptive norms reflect the perception of others regarding quantity and frequency of drinking (Borsari & Carey, 2001). This paper reports on an analysis of descriptive drinking norms that was undertaken under the auspices of the Caring Campus Project. In preparation for a social norms intervention, post-secondary students were surveyed for their normative perceptions of drinking as well as their own hazardous drinking behaviours. This analysis examined the drinking patterns of first-year university students, the prevalence of misperceptions of peers' drinking norms, and the extent to which over-estimated drinking norms perceptions were associated with hazardous drinking. In line with Social Norms Theory, we hypothesized that students with the greatest drinking norm misperceptions would be the most hazardous drinkers.

METHOD

Study Design

This is a secondary analysis of survey data collected as part of the Caring Campus Project, a three-year Movember funded intervention research project. This analysis is based on the data collected from a single Canadian university located in Ontario.

Data were collected during the fall of 2013 and the winter of 2014. For the 2013 recruitment period, all first-year undergraduate students were contacted via school email address to participate in the survey. The 2014 recruitment was identical except the participants were restricted to first-year male students—the target population for the Caring Campus interventions. This means that the proportion of males and females in the study sample is not representative of the underlying population. We used a distribution method endorsed by Dillman (2000) that involved survey distribution via email with four reminders and small incentives of a chance to win an iPad or gift cards to local coffee shops. The response rate of the Caring Campus survey was 26.0% for the 2013 survey and 48.7% for the 2014 wave. Both waves had similar incentives, but the first wave of data collection occurred in September, when students had just arrived to campus and may have been less inclined to complete the survey. By the time the second wave of data collection was underway, there was greater support from the young men who had been recruited to the Caring Campus project, which may have resulted in a more effective recruitment strategy. The data were collected using an anonymous online survey. Students responded to a range of questions and standardized measures pertaining to their substance use, mental health, and stress.

Measures

We assessed hazardous drinking during the students' current semester using the AUDIT-C, the abbreviated version of the World Health Organization's AUDIT (Babor et al., 2001). The AUDIT-C is composed of the first three items of the full AUDIT all of which relate to hazardous alcohol use: (1) frequency of drinking, (2) typical quantity, and (3) frequency of heavy/binge drinking (Babor et al., 2001). The AUDIT-C has been shown to be a valid screening test for heavy drinking and/or active alcohol abuse or dependence in various populations (Bush et al., 1998; Dawson et al., 2005; DeMartini & Carey, 2012; Kypri & Langley, 2003; Yip et al., 2015). The AUDIT-C assigns each of the three questions a score of zero to four with a possible summed score of zero to twelve (Bush et al., 1998). Higher scores indicate a more hazardous drinking pattern while a score of zero indicates abstinence (Babor et al., 2001). To detect hazardous drinking, the recommended cut-off point is seven for men and five for women (DeMartini & Carey, 2012). In a study by DeMartini and Carey (2012), these cut-off points produced a sensitivity of 80% and a specificity of 88% for men, and a sensitivity of 82% and a specificity of 82% for women. These cut-off points were used for the analysis of hazardous drinking, which was coded as a dichotomous variable.

Misperception of the drinking norm (defined as those that overestimated the drinking norm) was measured by the perceived frequency of typical drinking occasions and by the perceived frequency of binge drinking occasions. These estimates were then compared to the actual frequencies of drinking/binge drinking occasions that were reported by the sample. Because male and female patterns of drinking differ (Borsari & Carey, 2003) we used a gender specific question from the Drinking Norms Rating Form (Baer, Stacy, &

Larimer, 1991) to assess misperceptions. The gender specific question asked, “If you had to guess, how often do you think the average first-year female student at this university consumes alcohol (any number of drinks) (beer, wine, liquor)?” The same question was asked in reference to male students and in reference to binge drinking (consumption of more than five drinks in one sitting). Though the number of drinks constituting “binge drinking” was not lowered for female students, this gender-specific adaptation has been found to be an appropriate adaptation for the measure of perceived drinking norms (Lewis & Neighbors, 2004). The Caring Campus survey assessed the perceived drinking/binge drinking frequency with the following categories: never, monthly or less, two–four times a month, two–three times per week, and four or more times per week.

Actual drinking norms were assessed by individual items from the AUDIT-C (items one and three described above). Because the norm reflects the central tendency of the group, overestimation of the norm was calculated by comparing the actual drinking frequency norms for each individual to the most frequently reported (or modal value) of the perceived drinking frequency norms for each gender. We also examined the median (not reported) and found that using the median split versus the mode did not alter the results. Following the approach used by Campo and colleagues (Campo et al., 2003), misperceptions were coded as a dichotomous variable indicating the presence or absence of an overestimation (i.e., both under-perceptions and over-perceptions were coded as an absence of overestimation).

We also included information regarding students’ residence accommodation type (Blank et al., 2015; Stone et al., 2012), domestic/international status (Blank et al., 2015), employment (Blank et al., 2015; Stone et al., 2012), and gender identity as these were identified in the literature as potential confounders or effect modifiers in the relationship between social norm misperceptions and hazardous drinking.

Data Management and Analysis

Data were entered directly into an online survey tool and downloaded to a central database for analysis. For ease of presentation and interpretation, the prevalence of hazardous drinking (with 95% confidence intervals) was obtained for female and male students separately. Separate multi-variate logistic regression models were created for female and male students to evaluate the relationship between misperceived drinking norms and hazardous drinking. Variables were selected for analysis based on bivariate analysis and the literature. The covariates with a p-value <0.20 were included in the initial models (Kelsey et al., 1996). We refined models by deleting and refitting variables to identify confounders (Kleinbaum & Klein, 2010). Variables were retained in the model as confounders if they resulted in a change of 10% or more in the main parameter estimates (Sullivan, 2011). Backwards selection (Faul et al., 2009; Kleinbaum & Klein, 2010) was used to include relevant variables using a conservative p-value <0.20 (Kelsey et al., 1996).

RESULTS

Characteristics of the Study Participants

The analysis was based on 1,155 students (696 males 459 females). The original sample size was 1,689. However, individuals were removed for failure to complete measures crucial to the present study or for providing answers that did not allow them to be included in our gender-specific analyses. Three respondents

Table 1
Sample Characteristics

Variable	Female % (n)	Male % (n)
Gender	39.7% (459)	60.3% (696)
Legal drinking age		
Under-aged	67.8% (311)	78.0% (543)
Of age	32.2% (148)	22.0% (153)
Employment		
Currently unemployed	79.3% (364)	84.3% (587)
Currently employed	20.7% (95)	15.7% (109)
Living arrangement		
In residence	94.3% (433)	92.8% (646)
With family	1.5% (7)	2.7% (19)
In an apartment or house	4.1% (19)	4.4% (31)
Previous residence		
Elsewhere in province	75.2% (345)	75.1% (523)
Another province	16.3% (75)	14.5% (101)
This city	4.4% (20)	5.5% (38)
Another country	4.1% (19)	4.9% (34)
Program of study		
Science	23.5% (108)	17.1% (119)
Arts	40.1% (184)	21.3% (148)
Engineering/Applied science	10.5% (48)	35.5% (247)
Other	25.9% (119)	26.1% (182)

were removed for failure to identify gender, 10 were removed for identifying gender as non-male or non-female, and 521 were removed for failure to respond to all AUDIT-C questions.

Table 1 describes the sample characteristics. The majority (60%) of the participants self-identified as male (expected as the second study wave focused only on males). Male and female students were similar with respect to employment status, living arrangement, and previous residence. The most common program of study for males was applied science/engineering, and arts for females.

To assess the potential for non-response bias, we compared late responders, defined as people who responded to the survey in the 75% percentile from the time to initiation as proxies for non-responders to early responders (the remaining 25%). In a bivariate analysis, there were no significant differences in hazardous drinking between the early and late responders for both female ($\chi^2[1] = 0.666$, $p = 0.415$) and male students ($\chi^2[1] = 0.292$, $p = 0.589$). In addition to conducting a bivariate analysis, early/late responder type

Table 2
Drinking Prevalence by Gender

	Female (95% CI)	Male (95% CI)
Hazardous Drinking	46.8% (42.2%–51.5%)	48.6% (44.7%–52.3%)
Overestimated Drinking Frequency Norm	46.8% (42.2%–51.5%)	4.7% (3.3%–6.6%)

was added to the regression modelling and was eliminated as non-significant using the backward elimination procedure described above (results not shown).

Hazardous Drinking and Norm Misperception Prevalence

Table 2 shows drinking prevalence by gender. Approximately half of the sample reported a pattern of drinking that was defined as “hazardous” by the AUDIT-C, with less than a 2% difference between genders. Comparing actual drinking patterns to the perceived drinking pattern of same-gendered peers, almost half of the females overestimated the social drinking norm, compared to less than 5% for males.

Relations of Drinking Norm Misperceptions to Hazardous Drinking

Table 3 shows the results of the adjusted regression analysis that examined the relationship between overestimated drinking norm misperceptions and actual hazardous drinking behaviour, assessed via the AUDIT-C. Among female students, when living arrangement was controlled, the odds of being a hazardous drinker were a significant 1.92 times greater (CI: 1.32–2.79) when the female drinking frequency norm

Table 3
Adjusted Odds Ratios for the Association Between Hazardous Drinking and Misperceived Drinking Norms

Variable	Odds Ratio	95% CI	<i>p</i> value
Female Students (controlling for living arrangement)			
Misperceived Drinking Frequency Norm			
Under/Accurate Estimate	(reference)		
Overestimate	1.92	1.32–2.79	<0.001
Male Students (controlling for living arrangement and previous residence)			
Misperceived Drinking Frequency Norm			
Under/Accurate Estimate	(reference)		
Overestimate	0.99	0.48–2.04	0.984

Note: Pseudo R^2 for female model = 0.026; Pseudo R^2 for male model = 0.019.

was overestimated. Previous residence was removed in the backwards elimination process resulting in no change in the overall estimate. For male students, study wave was initially considered as a potential covariate as participants were recruited from two waves though it was eliminated as a covariate early on in the backwards elimination process. When living arrangement and previous residence were controlled, the odds of males being hazardous drinkers when the male drinking frequency norm was overestimated was 0.99 (CI: 0.48–2.04) and this was not statistically significant.

DISCUSSION

This analysis was conducted under the auspices of the Caring Campus Project, which examined hazardous drinking among first-year university students. In preparation for a social norms intervention, we examined the drinking patterns of first-year university students, the prevalence of misperceptions of peers' drinking norms, and the extent to which over-estimated drinking perceptions were associated with hazardous drinking. When using gender specific cut-off points for hazardous drinking, results showed that, regardless of gender, almost half of the students met the AUDIT-C criteria for "hazardous" drinking. This is consistent with literature showing that the gender gap between men and women is closing (Stewart, Gavric, & Collins, 2009); however, different results may be obtained if gender-neutral cut-off points are used (Narain, 2016). Females were significantly more likely to misperceive same-gender, peer-based drinking norms compared to males. The vast majority of the men correctly identified their peers' drinking patterns.

Because the Caring Campus Project was targeted to hazardous drinking among first-year males, this pattern of findings among males posed a problem for the application of Social Norms Theory. A key assumption about social norms-based applications is that it is possible to identify a healthy norm that one can use to illustrate that most students are not using alcohol in a hazardous way. The approach assumes that valid normative information exists and that students will accurately interpret that information and directly compare it to their own drinking behaviours (Lewis & Neighbors, 2006). Perkins (2003b) discusses the problem of alcohol use on university campuses when we identify a higher level of risk than we would want. The assumption is that even if the norm is not ideal, it remains possible to mount an effective intervention because students still believe their peers are, on average, drinking even more. Addressing misperceived norms is potentially beneficial even when the prevalence of problem drinking is high, as it was in our sample. However, this is based on the assumption that there will be a gross misperception of the peer-drinking norm. In our results, there was no misperception of the peer-drinking norm among men (our target for the Caring Campus Project). Only 4.7% of first-year undergraduate male students at the university overestimated the drinking frequency norm of other male students. This means that even a successful social norms marketing campaign would result in minor and potentially unimportant changes among our target group of males at the population level.

Perkins (2003b) has noted that "in the rare instance" when a study does not show a discrepancy between actual and perceived drinking norms, it is likely because the measures used to identify actual versus perceived norms were not comparable. We used a gender specific question to identify same-gender peer drinking norms and specifically targeted norms of first-year students. We also used the AUDIT-C, with gender specific thresholds, to identify hazardous drinking. Though both measures used gender-sensitive cut-off points, it may be that they were not directly comparable. However, a recent Cochrane review of

70 studies representing 44,958 students also reported disappointing results. Over four or more months of follow-up, there was only a small effect of social norms information on binge drinking and drinking quantity. They found a modest decrease in drinking frequency of 0.32 drinking days per week and 2.7% reduction in the quantity of binge drinkers post-intervention. The authors concluded that there was no “substantive meaningful benefits” associated with social norms interventions for the prevention of alcohol misuse among post-secondary students. Though some significant effects were found, they were too small to be of practical relevance (Foxcroft et al., 2015).

Failure to substantially alter drinking behaviours following a norm-correcting intervention may be due to a failure to account for other factors such as the social proximity of the peer group. In a meta-analysis of 23 studies, Borsari and Carey (2003) found that college students were more likely to misperceive how much other students drank as social distance increased. In their study, distal referent groups were composed of “typical students” and proximal referent groups were composed of close friends and family. A study by Neighbors (2008) echoed these results with proximal referent groups composed of individuals of the same gender, race, and association with a sorority or fraternity. Bachrach et al. (2009) conducted a similar study where the purpose was to determine whether interpersonal and intrapersonal factors influence students’ drinking behaviour. For the Bachrach et al. (2009) study, interpersonal factors included perceived descriptive norms for quantity and frequency of alcohol use for two referent groups: same-sex students and their closest friend. The perception of the norm of same-sex students (distal referents) did not predict weekly and weekend consumption and these results did not vary by gender. These outcomes were instead predicted by the perception of the closest friends’ drinking (Bachrach, Mallett, & Turrisi, 2009). Based on these findings it may be that our inability to identify gross misperceptions among young men, may be the result of using a proximal reference group of average first-year male students. For example, the university in the study is recognized for its emphasis on residence-based living for first-year students, which could increase participant proximity, relative to other universities that do not have a residence-intensive environment.

An additional requirement of social norms interventions that posed a challenge for our intervention was the need to collect credible data identifying drinking prevalence and misperceptions from students at the campus being targeted for the intervention. The basis of the social norms approach is to communicate the “truth” about peer norms in terms of what the majority of students think and do (Perkins, 2003a). Despite applying a best practice in survey research following Dillman’s (2000) method, our response rates were less than ideal: 26% for the first wave and 48.7% for the second wave. This means that we may have been comparing a perceived norm that was intended to represent the behaviour of the entire student population with an actual drinking norm based on a selected and potentially biased sub-sample. If the sample was skewed toward the heaviest drinkers (and heavy drinking was prevalent in our sample), then the misperceptions would be small. However, we examined the potential for selection bias by comparing late survey responders to early responders. Research has shown that late responders are closer in characteristics to non-responders than early responders (Lin & Schaeffer, 1995). There was no significant difference between the early and late responders suggesting that selection bias due to non-response may not have been strong in this study. Despite this, the extent to which response bias may have influenced results cannot be known and this remains a challenge for the implementation of social norms interventions.

Based on our null results, we did not proceed with a Social Norms intervention aimed at male students at the university. Other interventions planned under the Caring Campus Project were yielding good results; specifically, contact-based education and student empowerment approaches as described elsewhere in this special issue. Therefore, we decided to direct our time and resources to these activities in an attempt to maximize cultural change. However, our findings suggest that a Social Norms approach may be more appropriate for women. This is consistent with research showing that women have unique alcohol treatment and prevention needs relative to their male counterparts (Stewart, Gavric, & Collins, 2009). Our results suggest that social norms interventions should be based on gender specific analyses to determine whether they are more effective for women.

In summary, the lack of association for male students between drinking norm misperceptions and hazardous drinking highlights the clear violation of a key assumption for Social Norms interventions and emphasizes the challenges this approach can pose for Social Norms-based interventions on university campuses. These results bring into focus the need for a wider range of alcohol reduction strategies for male undergraduate students and the importance of gender-specific interventions.

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